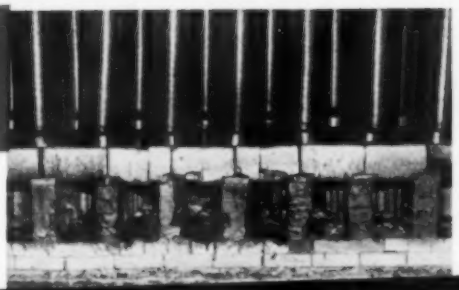
LEADING CLAY JOURNAL OF THE WORLD • A CAHNERS PUBLICATION • DECEMBER • 1961/75c

Brick & Clay RECORD

Burning at Stark Ceramics

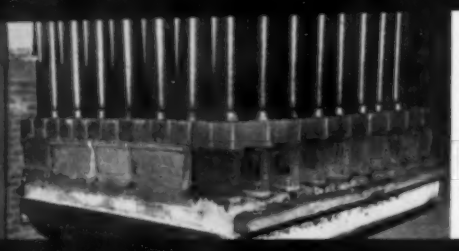
page 40

5 times the service life from Remmey SKC car blocks

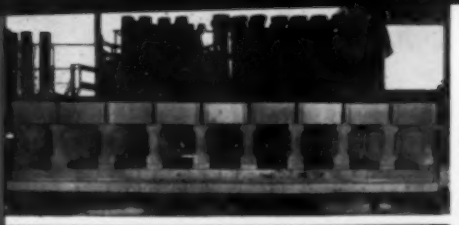


Cartop design used by Pomona Terra Cotta prior to adopting the design of SKC girders and SKC cartop blocks recommended by Remmey. This design provided an average of 3 to 4 months service.

A car of old type cartop blocks (foreground) and a car of SKC cartop blocks (background) after both had been through the kiln a similar number of times.



Many types of refractory girders were tried on the ends nearest the burner but the additional cost was not justified and Pomona has now standardized on SKC girders.



A new car at Pomona Terra Cotta showing their standardized design using SKC girders and SKC cartop blocks. A good solid design that gives as much as 5 times the service formerly obtained.

Pomona Terra Cotta Co., Gulf, North Carolina reports that prior to their usage of SKC Car Blocks, the maximum service they had ever obtained was 4 months. Failure was due to very bad cracking resulting in car wrecks, shut downs and damaged sewer tile. SKC Car Blocks average 18 months service—as much as 5 times the life of competitive clay blocks.

Cut your production costs . . . Write or call

A. P. GREEN FIRE BRICK COMPANY
MEXICO, MISSOURI

A. P. Green REFRACTORY PRODUCTS

Manufactured in Philadelphia by

THE REMMEY DIVISION

In Canada, A. P. Green Fire Brick Co., Ltd., Weston, Ontario

Circle Service No. 1

Season's Greetings
Our sincerest wishes for a HAPPY YULTIDE season ... laden with love, warm friendship and good fellowship.
May the spirit of peace on earth to men of good will prevail during the coming YEAR
... and may health and prosperity be yours.

THE O. HOMMEL CO.

PITTSBURGH 30, PA. Dept. CI-1261

West Coast — 4747 E. 49th Street, Los Angeles, California

Circle Service No. 2

HOMMEL

NEW! MANGANESE ORE IN ONE TON, ONE-WAY CARTONS!

SAVE TIME... SAVE EFFORT

These new, moisture-proof, disposable cartons of MnO_2 empty through the bottom. For a half ton, pull one tab. For a ton, pull both tabs. Saves time, does away with lifting, opening, discarding 20 sacks.

HOWE SOUND

National manganese ore is ground to "always uniform" mesh for consistent color and firing time from lot to lot. Same high quality in regular 100-pound bags or new one-ton cartons. Complete inventories at the Brownsville (Texas) and Lynchburg (Va.) plants and the Lindale (Texas) warehouse. National Paint and Manganese Co., 810 Park Building, Pittsburgh 22, Pa.

NATIONAL PAINT & MANGANESE COMPANY
A DIVISION OF HOWE SOUND COMPANY

Circle Service No. 6

THIS MONTH'S COVER

An example of making an already excellent operation even better is offered by Stark Ceramics, Inc., Canton, Ohio, which supplied this striking cover illustration and is also the subject of a feature article in this issue. Read the whole story beginning on page 40.

A CAHNERS PUBLICATION

Brick & Clay RECORD

Contents for December, 1961 • Vol. 139, No.6

40 Stark Modernizes Already Modern Facilities

Stark Ceramics, Inc., Canton, Ohio, already had modern and extensive operations, but the need for immediate additional production and their faith in the future of clay products in construction led to even further updating of the facilities, while at the same time cutting operational costs. They asked themselves some questions and came up with a new tunnel kiln and a more efficient sizing and grading system.

43 How to Make Clay Block on Concrete Block Machines

Gilbert Robinson of Clemson College calls the industry's attention to the value of concrete block machinery in the manufacture of clay block. He points out that a block machine is capable of forming 1000 block an hour with a total labor expenditure for mixing, forming and setting in the drier of three man hours.

48 Research Is Theme of SCPI Meeting

The theme of industry research dominated the 1961 annual convention of the Structural Clay Products Institute. Speakers stressed industry cooperation to produce the best possible research program with the fruits of the program to be put to use in preserving and improving the industry's position in this highly competitive field.

50 How North American Built New Basic Brick Plant

With a firm belief in a bright future for the basic brick industry, North American Refractories Co. has built facilities for basic brick manufacture at its Womelsdorf, Pa., location. From ground breaking to first shipment of basic brick took less than a year. This article covers the manufacturing process.

55 Hub Hill Speaks on the Future of Acme Brick

Hub Hill, chairman of the board of Acme Brick Co., Fort Worth, Texas, tells why the company went outside the industry to secure President Dee O. Tomlin and relates plans the firm has for expansion, new products, promotion.

57 The Role of Draft in Firing Periodic Kilns

J. George Seanor, of the Bonnot Co., contributes additional information on the firing of periodic kilns, this time stressing the role of draft in the operation.

Departments

18 New Products
21 New Literature
29 Editorial
32 News of the Industry
36 SCPRF News
38 News of Refractories
53 Circle Service Card
64 Annual Editorial Index

Leading Clay Journal of The World
Established 1892; Now in 69th Year

*J. J. Svec
Editor and Publisher

Editorial

*Fred L. Steinhoff, *Editorial Director*
Kenneth A. Brent, *Senior Editor*
*Neal Mohler, *Managing Editor*
A. A. Ferreira, *Associate Editor*
Dorothy May, *Production Director*
**Ceramic Engineering Staff*

Sales Offices

Home Office: *5 S. Wabash, Chicago 3, Ill. Franklin 2-6880: Floyd M. Burdick, Business Manager; J. B. Stringer, Sales Representative; Robert H. Mathews, Assistant Business Manager; Anne Anzak, Sales Assistant.*

New York: *Albert S. Robinson, Vice President; Harry H. Linden, 310 Madison Ave., New York 17, N. Y., Yukon 6-2030*

Cleveland: *Richard F. Burkhart, Room 702, The B. F. Keith Building, 1621 Euclid Ave., Prospect 1-1312*

Southern: *John M. Printup, 121 S. E. First St., Miami, Fla., Phone: Franklin 9-2668*

Dallas: *R. W. "Whit" Jones, John Printup & Assoc., 906 Beechwood Drive, Richardson (Dallas) Tex., Phone: AD 5-2041*

Los Angeles: *Richard S. Meyer, 3137 Kelton Ave. Phone: BRadshaw 2-1456.*

San Francisco: *Richard S. Meyer, 681 Market St. Phone: YUkon 2-3029.*

Pacific Northwest: *Frank J. McHugh, Jr., 520 S. W. 6th Ave., Portland 4, Oregon. Phone: CApital 6-2561. Also Seattle*

CONTRACTS: Formal acceptance made only in Chicago.

Business

M. J. Skodon, *Vice President in Charge of Manufacturing*
H. G. Love, *Circulation Director*

BRICK & CLAY RECORD is published monthly by Industrial Publications, Inc., 5 South Wabash Ave., Chicago 3, Ill. Second class postage paid at Chicago, Illinois and at additional mailing offices.

Subscriptions

U.S.A. and Canada, $5.00 for One Year; $10.00 for Three Years. Single Copies (current issue) 75 cents, foreign $1. Single copy rates for back issues, $1. Foreign Rates, $7 per year; three years, $15.

Subscription Renewals

Forward all mail, including subscription renewals, changes of address (including new zone number, old address) orders for subscriptions, undeliverable copies, etc. to BRICK & CLAY RECORD, 5 South Wabash Ave., Chicago 3, Ill. Printed in U.S.A.

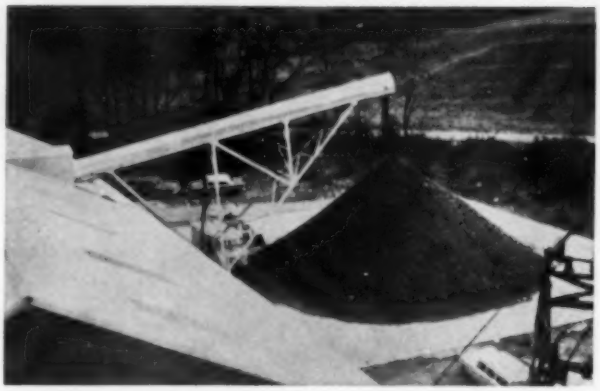
Published monthly and copyrighted 1961 by Industrial Publications, Inc., subsidiary of Cahners Publishing Co., Inc., 5 S. Wabash Ave., Chicago 3, Ill., U.S.A. Norman L. Cahners, Chairman of the Board; Maurice P. Driscoll, President; F. L. Steinhoff, Exec. Vice President & Treasurer; Saul Goldweitz, Vice President; F. J. Amstadter, Secretary. BRICK & CLAY RECORD is indexed by Engineering Index, Inc.

PLANNED FOR PROFITABLE PRODUCTION: HENDRYX CERAMIC PLANT DESIGN

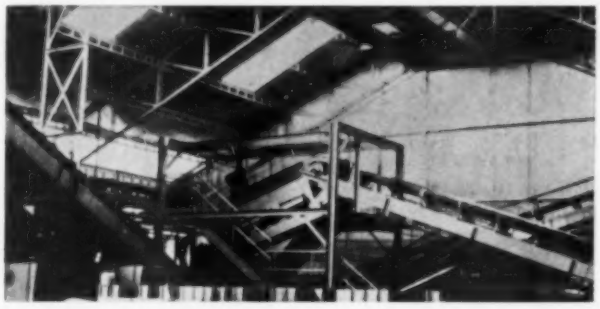
The North American Refractories Company Basic Plant in Womelsdorf, Pa., was designed and construction supervised by Hendryx to produce a quality product at a lower plant operating cost.

Hendryx . . . known from coast to coast as ceramic plant specialists, provide the complete, coordinated and mechanized plant package to manufacture your structural clay products from the receiving of your raw materials to the shipping floor of your finished product. Hendryx engineering includes buildings, clay handling, crushing, mixing, drying rooms, continuous dryers and tunnel kilns—all of the latest, most efficient design — with complete supervision of construction, assembly and installation. You are assured of an integrated operation for more profitable production over a longer period of time.

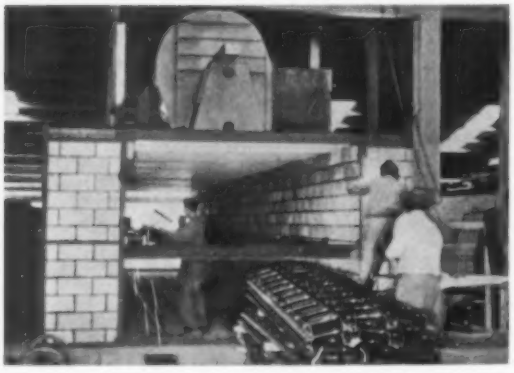
Whether you require a complete new ceramic plant or a single installation, such as a tunnel kiln, drying oven, or clay grinding equipment, it will pay you to consult Hendryx.



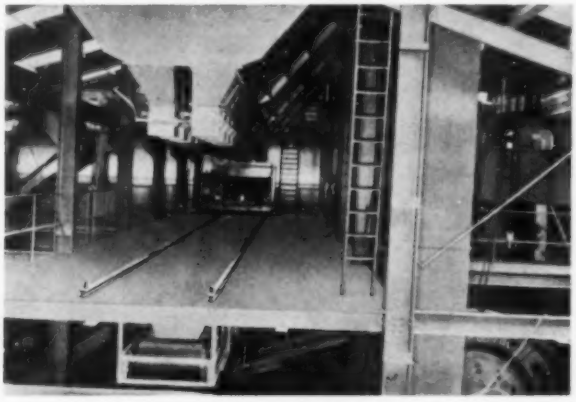
Crushed ore storage pile and stacking conveyor. Periclase material is stored inside the ore storage building.



Crushing, screening and conveying equipment in ore storage building.



Curing and drying room for chemically bonded brick, under construction. Pressed brick and shapes move through this double-deck dryer on steel pallets, carried on rollers.



Batch car under the ground ore storage bins. Each type of ore is ground and separated into four screen sizes, which are recombined in desired proportions in batch car and mixer. Conveyor under batch car floor feeds mixer. Elevator and ball mill at right.

HENDRYX
CERAMIC PLANT DESIGN

DWIGHT B. HENDRYX AND ASSOCIATES
6621 Darlington Road
PITTSBURGH 17, PA.

Circle Service No. 4

Greater Capacity – Maximum Flexibility in LIMITED SPACE "U.S." *Long-Roll* JAR MILLS

2
1
3
Special Features:
1 Three-position adjustment handles jars 2" to 15" in diameter.
2 Free-turning, ball-bearing jar stops.
3 Lifetime lubricated and sealed bearings.
HANDY HINTS ON JAR MILLING
If bending or breaking jar lid locking bars constitute a problem, check for hardening of the gaskets. Should be soft enough to indent with fingernail (about 30 Durometer).
For additional helpful grinding and mixing data, plus full details on "U.S." Jar Mills, WRITE FOR BULLETIN JM-290.

"U.S." Long-Roll Jar Mills are specially engineered to make most efficient use of valuable floor space. Their greater capacity and flexibility make it possible to expand substantially your milling facilities within virtually the same floor area as occupied by other models.

These units have sturdy welded steel frames built for long, dependable service under rigorous operating conditions. The 3" diameter parallel-ground rollers are made of long-wearing chemical- and solvent-resistant Neoprene rubber. Heavy-duty motors and drives assure ample power.

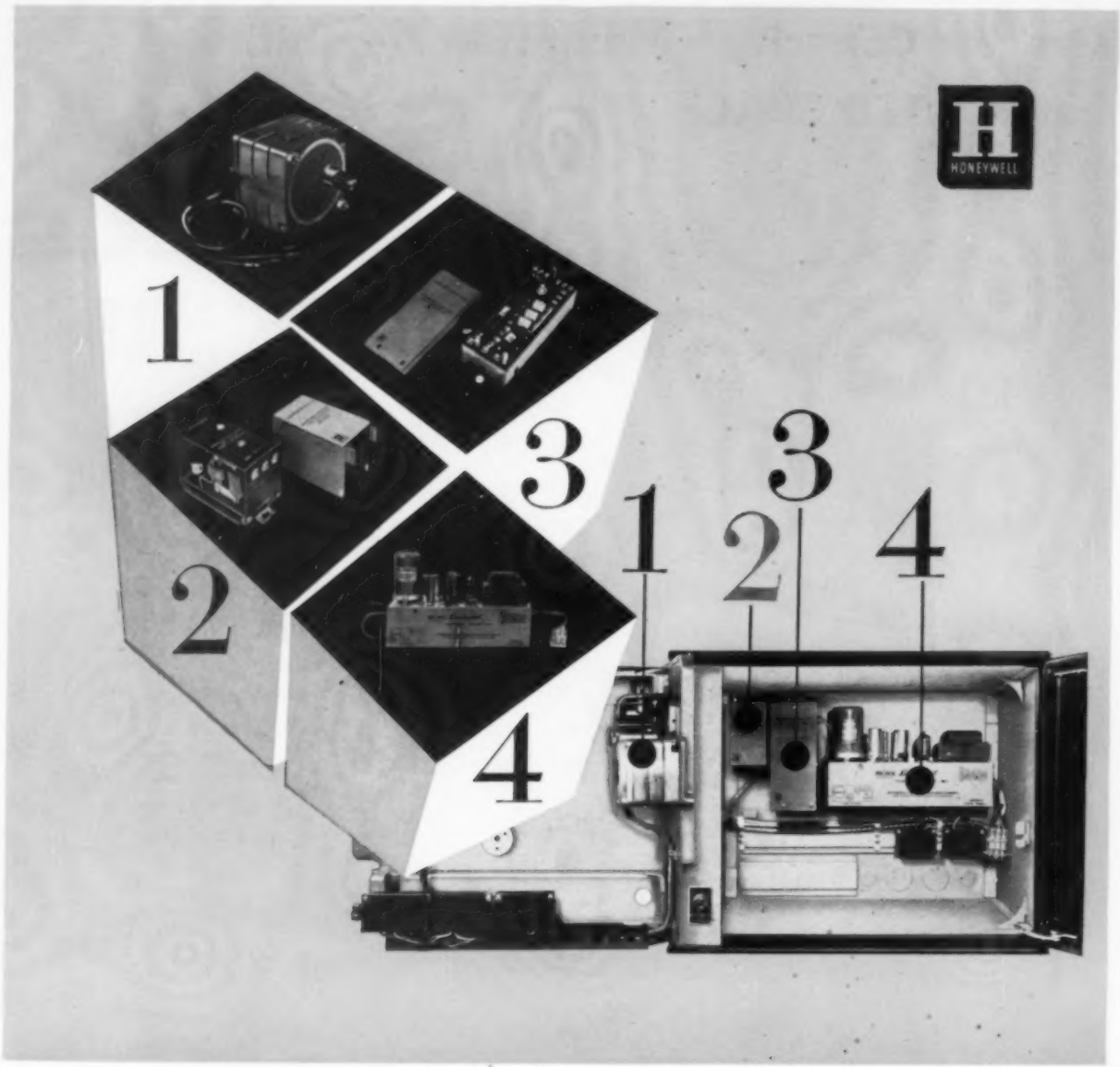
FULL RANGE OF SIZES — Available with two or three rolls; single or multiple tiers; roll lengths from 16" to 72". Wide choice of optional equipment including cabinets, casters, automatic timers, tachometers, clutches and variable speed drives.

PROCESS EQUIPMENT DIVISION

U. S. STONEWARE
AKRON 9, OHIO

403-G

Circle Service No. 9



It's what's in the modules that matters!

Take the newly designed modules in ElectroniK 15 Potentiometers. These modules have operating and servicing features that represent the very latest developments in the art of reliable instrumentation—**1.** Sectionalized motor module makes servicing a snap. Any major part of the servo or chart drive motors can be replaced in a matter of minutes. **2.** Line-powered constant voltage module provides a completely automatic d-c voltage source and replaces batteries, standard cells, and standardization mechanisms. **3.** Quick-change measuring circuit module reduces range or actuation changes to simple screwdriver operation. **4.** Quick-connect amplifier module is easily removed for servicing. Over 15 models available—for gain up to 40 x 10^6, for input impedance of 400 to 50,000 ohms.

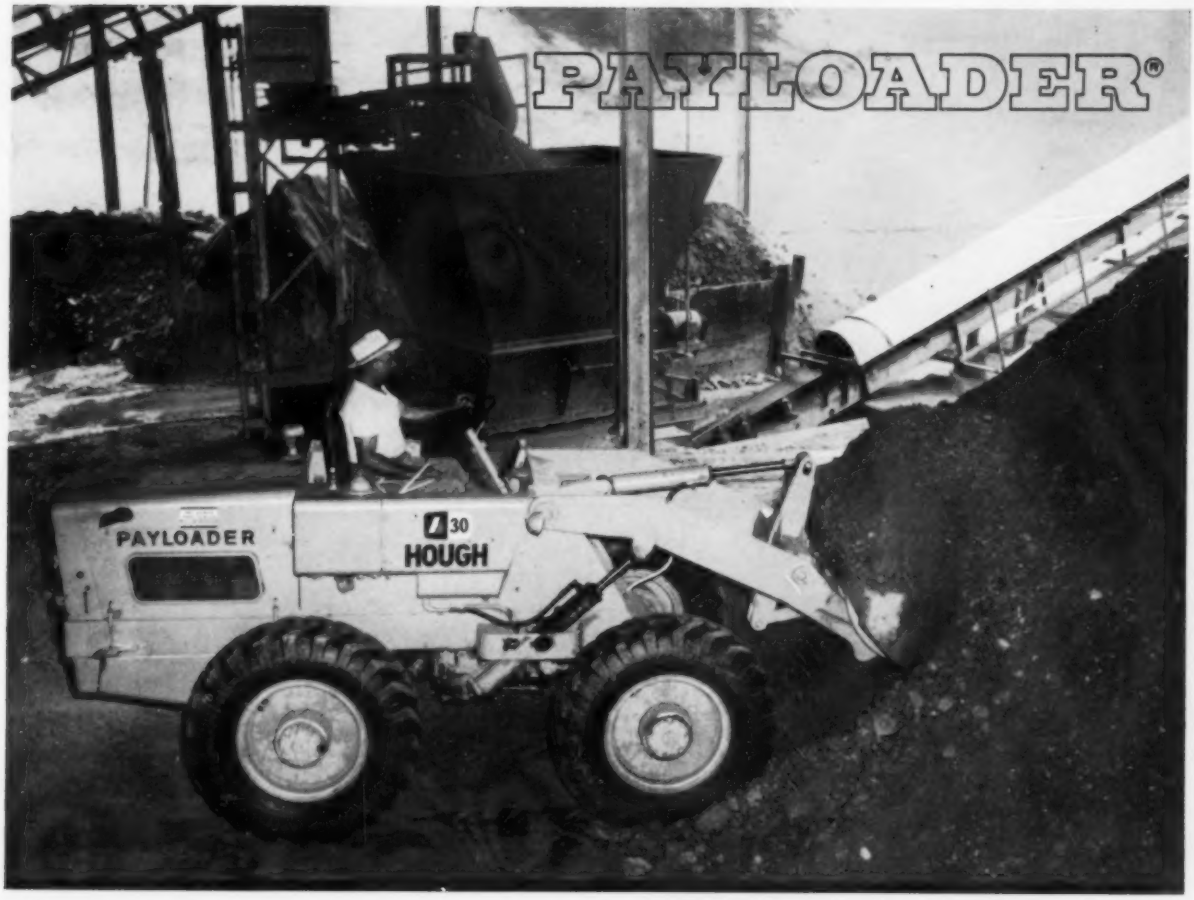
Get complete details by contacting your nearby Honeywell field engineer today. Minneapolis-Honeywell, Wayne and Windrim Avenues, Philadelphia 44, Pennsylvania. In Canada, Honeywell Controls, Ltd., Toronto 17, Ontario.

Honeywell

H First in Control SINCE 1906

HONEYWELL INTERNATIONAL Sales and Service offices in all principal cities of the world. Manufacturing in United States, United Kingdom, Canada, Netherlands, Germany, France, Japan.

Circle Service No. 3



"has all the features needed for our work..."

"The H-30 PAYLOADER operation is more efficient . . . it gives us better quality control and higher storage pile reserve over previous equipment used. With its extra high reach, large load capacity and excellent maneuverability for shed work, the H-30 handles about 180 tons of material twice to three times a day . . . and the same operator has time to run the grinding machine, producing 90 tons of finished product during an 8-hour day."

says **GEORGE C. CRAIG**, Vice-President, **GEORGIA VITRIFIED BRICK AND CLAY COMPANY**

Georgia Vitrified Brick & Clay Company in Harlem, Ga., uses four native clays in the manufacture of high grade sewer pipe, drain tile, fire brick and similar products. They use a Model H-30 PAYLOADER tractor-shovel (3,000-lb. operating capacity) for handling the heavy bulk clays. This unit was purchased to replace a larger loader of another make.

This Progressive Company has found that the flexible and dependable performance of the H-30 PAYLOADER pays off in many ways: In addition to handling and stockpiling materials, the H-30 is being used to pre-mix various types of clay, feed the mulling machines on a 100-ft. haul, load out large pipe for transit and carry stoker coal to boiler rooms.

There is a Proven PAYLOADER in a size and type to fit any material-handling requirement . . . with options of gas, diesel or LPG power. Your HOUGH Distributor is ready to demonstrate how useful and valuable an H-30 or other larger PAYLOADER sizes can be in your operation. Contact him today or return the coupon for more details.

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

HOUGH, PAYLOADER, PAYMOVER, PAYLOGGER, PAYDOZER and PAY are registered trademark names of The Frank G. Hough Co., Libertyville, Ill.

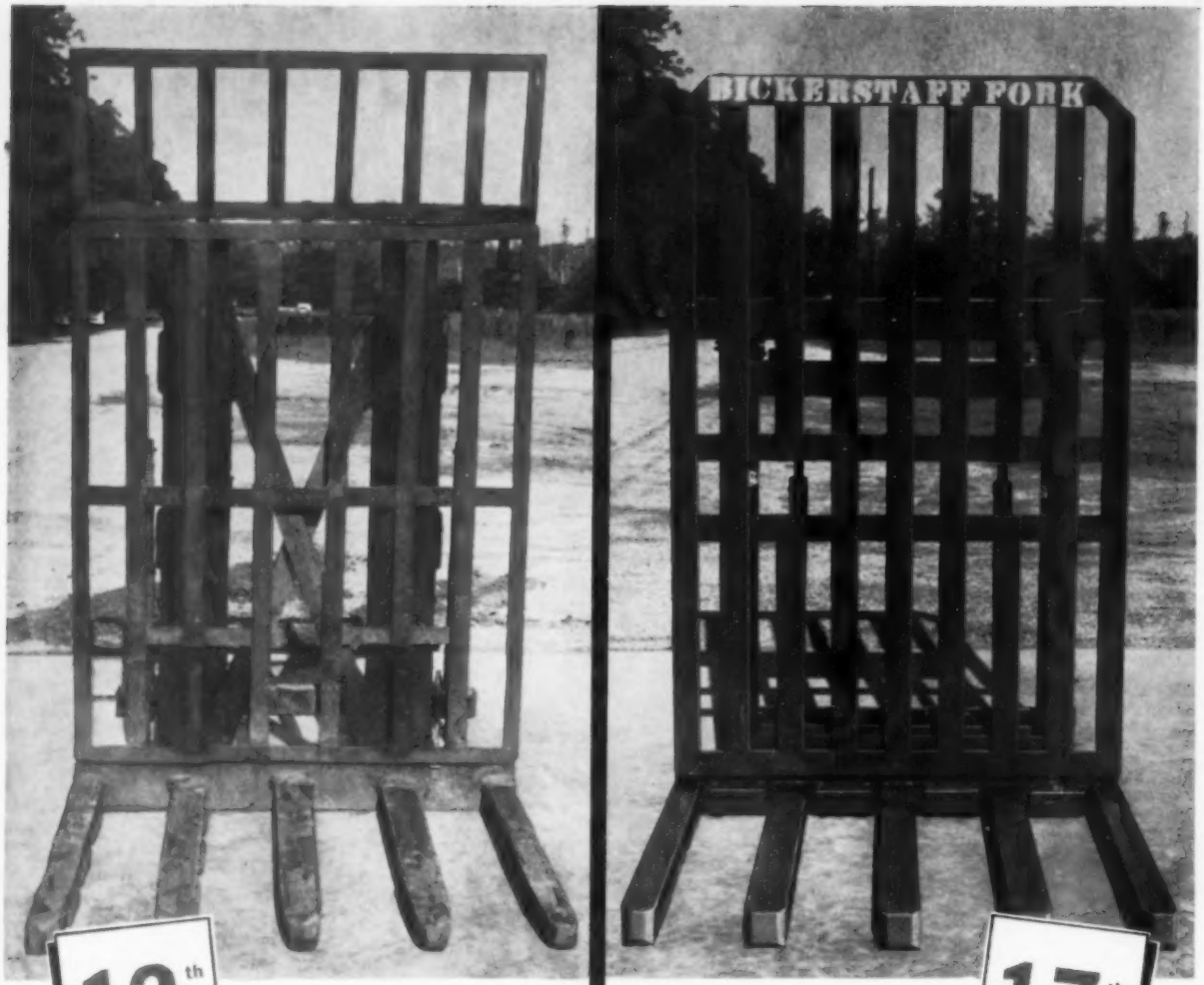
THE FRANK G. HOUGH CO., 753 Sunnyside Ave., Libertyville, Ill. 12-8-7

☐ **Send data on H-30 PAYLOADER**

☐ **Send data on other PAYLOADER Units**

NAME
TITLE
COMPANY
STREET
CITY STATE

Circle Service No. 7



Send us your old tired Fork . . .

We will send it back looking New and Eager

After years of maximum use even a Bickerstaff Fork shows its age. If you're using such a fork that has just about seen its day - don't discard it. Bickerstaff will rebuild it for you completely - adding the latest changes and modifications. Your old fork will come back to you looking brand new and more serviceable than when it was new. Write or call today giving us the model number of your fork. Estimated cost of your complete factory-rebuilt fork will be sent to you immediately.

HIGH PERFORMANCE - MINIMUM MAINTENANCE

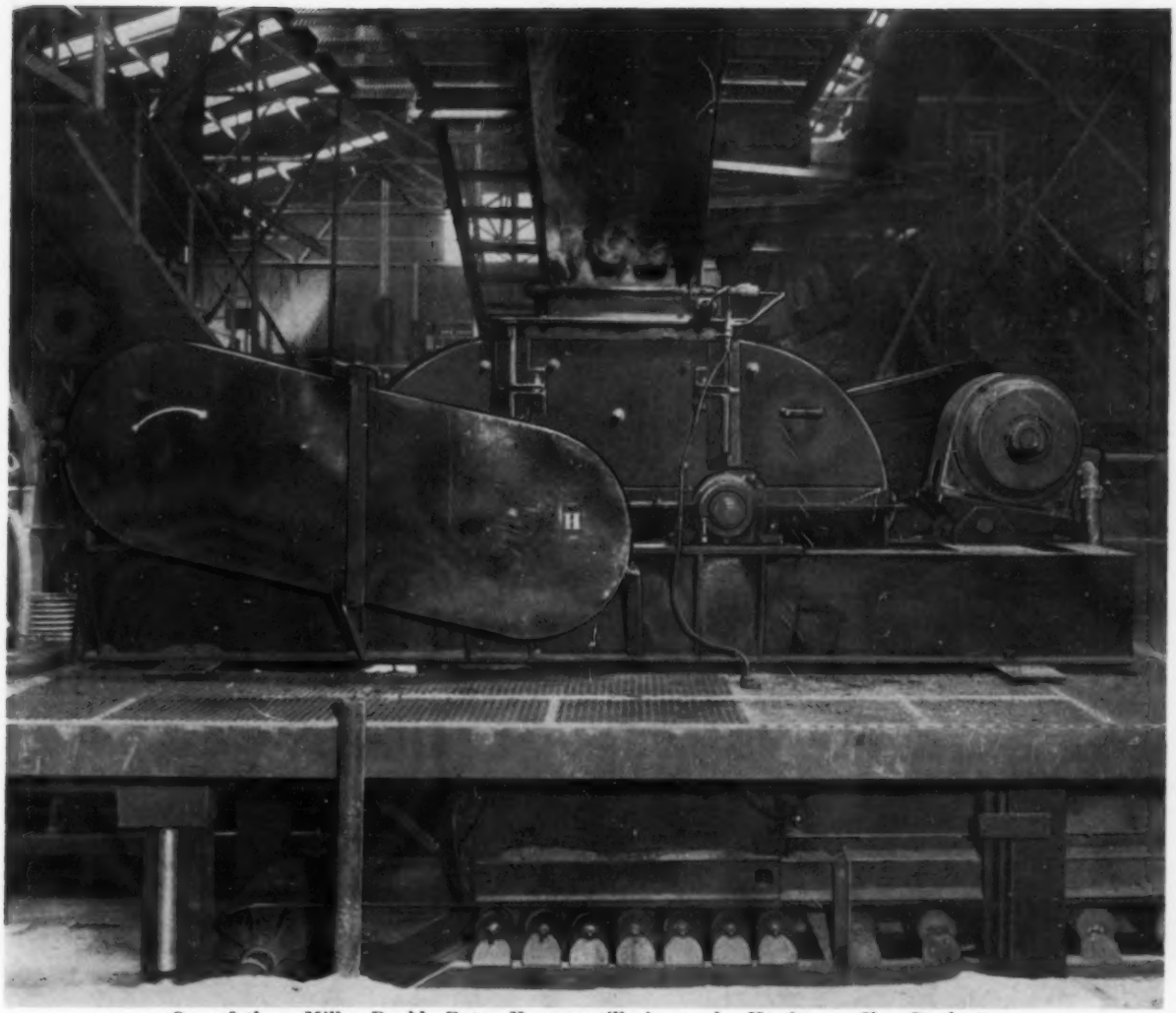
REPRESENTATIVES THROUGHOUT THE U. S. AND CANADA

West Coast Representative:
WALTER C. STOLL & SONS
5028 Alhambra Avenue, Los Angeles, California

BICKERSTAFF, INC. • BOX 1178 COLUMBUS, GA. • CYpress 8-0455

ENGINEERED FORK LIFT TRUCK ATTACHMENTS

Circle Service No. 8



One of three Miller Double Rotor Hammermills in use by Henderson Clay Products.

PROVEN . . . BY YEARS OF USE . . . THE BEST HAMMERMILL FOR STICKY CLAY OR HARD SHALE

Henderson Clay Products chose the Miller Double Rotor Hammermill for maximum uniform production. Further proof of Miller quality and dependability, Henderson has three of the more than 100 units in service today delivering "bonus pulverization" using the minimum horsepower per ton of ground material.

Miller Double Rotor Hammermills are scientifically designed for efficient reduction of varying materials—wet, sticky clays, dry grog or shale. Two models currently available with or without heat jackets, and screen bars can be used in either model. Miller Hammermills are equipped with Jiffy* replaceable interlocking hammer tips and all rotating parts are accurately balanced to assure vibration free operation. Support frame, discharge conveyor and dusthood available for installation as a complete unit. All wearing parts are easily replaced and accessible through removable end covers. Miller maintains a complete inventory of wearable parts. Look to Miller for the finest . . . two models to choose from, 50 and 100 ton capacities. Complete data on each furnished on request.

*Patented

The Original

Double Rotor Hammermill

Miller Equipment Company

P. O. Box 1566 • Phone ME 3-3541 • Salisbury, N. C.

Pacific Agent:
WALTER C. STOLL & SONS
5028 Alhambra Avenue
Los Angeles 32, California

Circle Service No. 5

"exactly the same as last time!"

Lot after lot after lot—you can rely on TAM, with utmost confidence, for consistently uniform opacifiers. In any desired quantity, too.

At TAM, knowledge is blended with experience—modern facilities and equipment with latest techniques—research and development with ceramic engineering ... toward supplying quality materials of consistent uniformity.

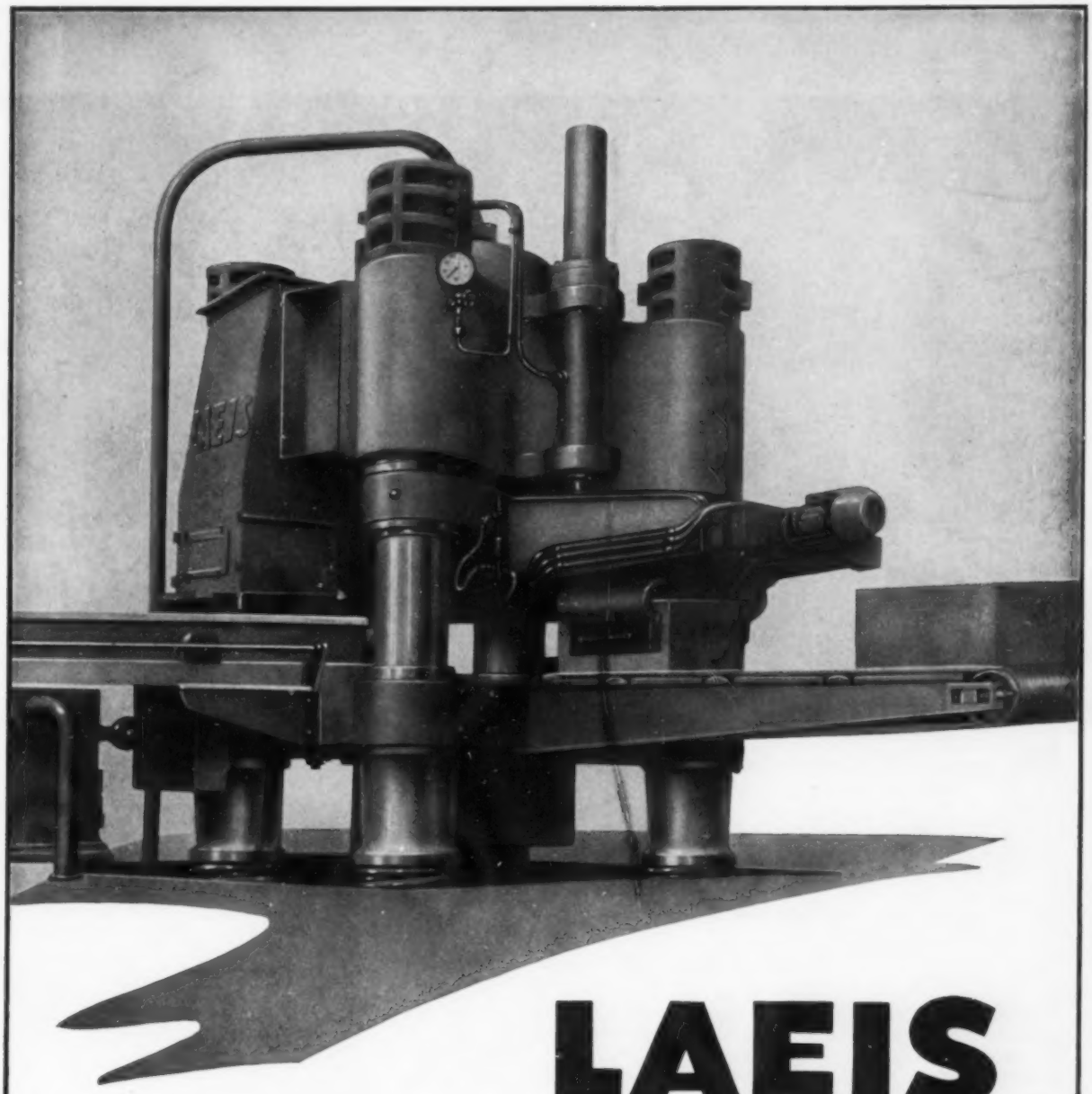
If you are having difficulty with uniformity or any other problem, call TAM. Our field representatives, ceramic engineers all, are experienced in providing unmatched service.

TAM ... the complete line
Superpax A
Superpax
Opax
Opax S
Treopax
Zircopax
Double Silicates

TAM
DIVISION NATIONAL LEAD COMPANY

Executive and Sales Offices: 111 Broadway, New York City
General Offices, Works and Research Laboratories: Niagara Falls, N. Y.

Circle Service No. 10



LAEIS

COMPLETELY AUTOMATIC PRESSES "ROBOT"

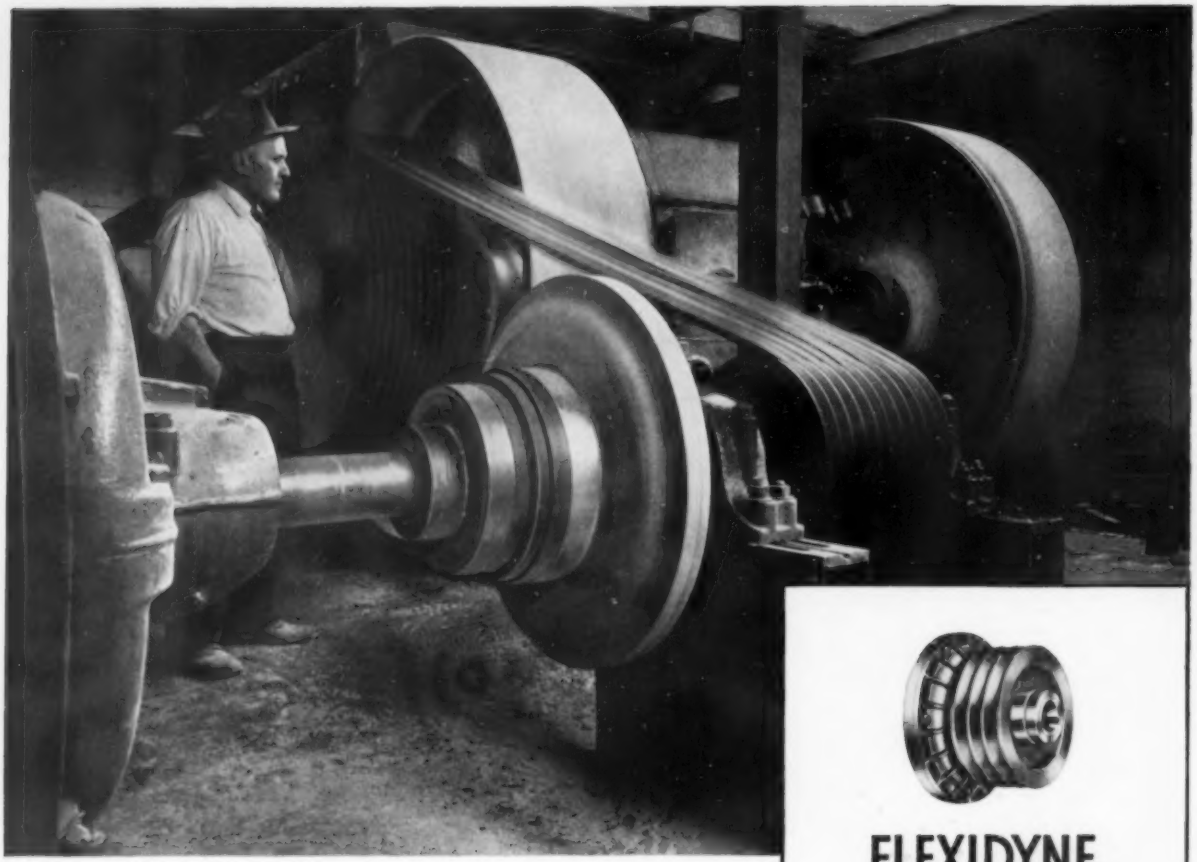
Hydraulic, fully automatic presses for forming special as well as standard refractory shapes, crucibles, ceramic bonded grinding wheels and large porcelain parts. Suitable for any large shape which requires uniform dense compaction.

Pressures up to 2,000 tons total can be developed. Fully covered by German and foreign patents. These presses are being used most advantageously in the refractory industry for basic refractories, silica refractories, arches, checkers, hollow refractory tiles and blocks.

For complete information and literature write to

LAEIS-WERKE A.-G.-TRIER
Western Germany

Circle Service No. 11



Look, Folks...No Jolts!

– and no reduced voltage starter!

– no oversize motor!

Introduce Flexidyne into your drive system and your stubborn loads take off smoothly, without the necessity of oversize motors or costly controls. Flexidyne provides the equivalent of a "no load" start, reduces maintenance, protects motors against shock or overload, and operates at 100% efficiency at full load speed!

Across the nation — on jaw crushers as above, on mixers, ball mills, cranes, conveyors, cotton cards — in wire drawing and elsewhere — thousands of Flexidynes are performing brilliantly. Here is the *new and better* way to start loads smoothly!

Flexidyne is available from stock in 8 drive sizes and 10 coupling sizes for capacities to 1000 hp. Ask your Dodge Distributor, or write us for complete technical bulletin.

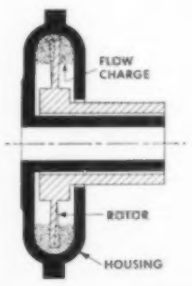
Dodge Manufacturing Corporation, 4900 Union St., Mishawaka, Indiana

FLEXIDYNE

THE DRY FLUID DRIVE

The "fluid" in Flexidyne is heat treated steel shot. A measured amount, called the flow charge, is contained in the housing which is keyed to the motor shaft. When the motor is started centrifugal force throws the flow charge to the perimeter of the housing, packing it between the housing and the rotor which transmits power to the load.

After the starting period of slippage between housing and rotor the two become locked together and achieve full load speed, operating without slip and at *100% efficiency*.



The Products with the Pluses... **DODGE** ***of Mishawaka, Ind.***

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Look under "Dodge Transmissioneer" in the *white* pages of your phone book. Factory trained by Dodge, he can give you valuable assistance.

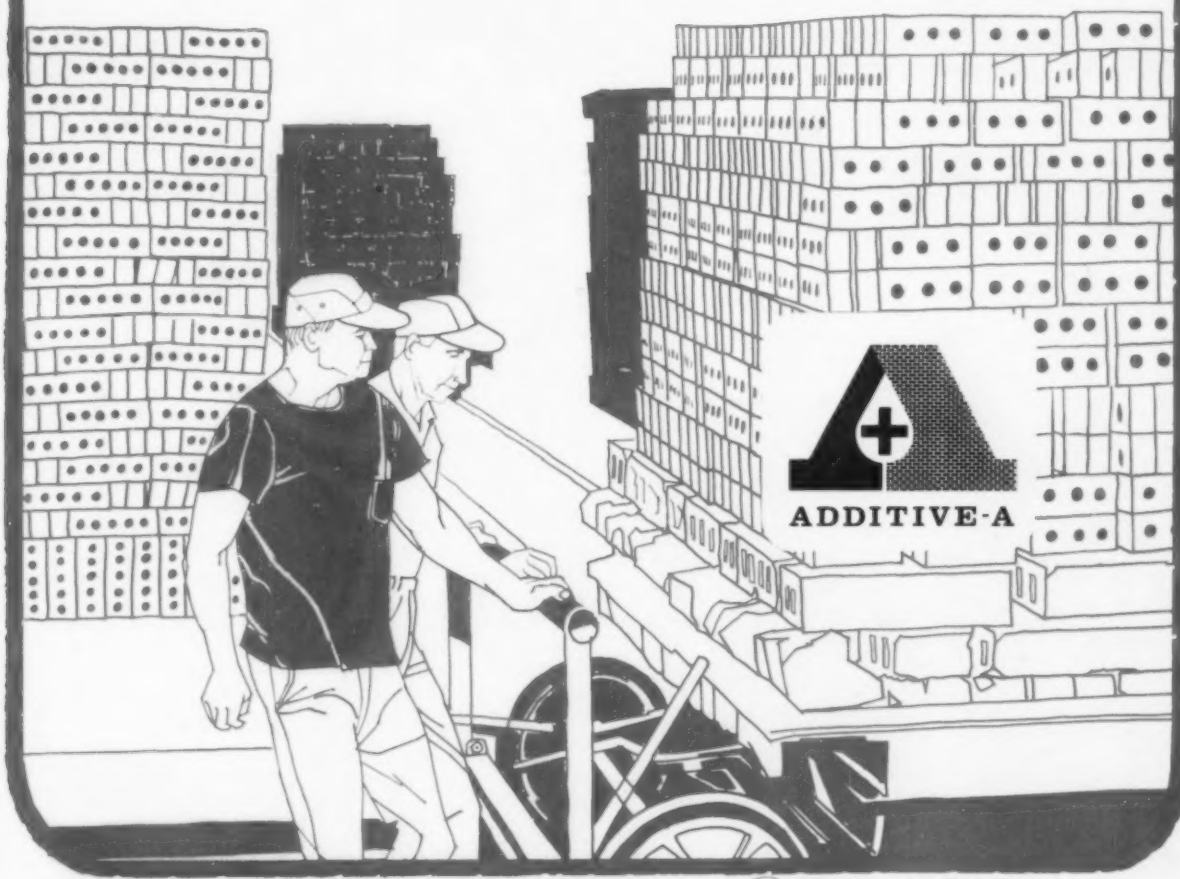
Circle Service No. 20

"ADDITIVE-A® GIVES US FINER QUALITY WARE AND IS EASY TO USE IN OUR PROCESS"

—says North Carolina brickmaker.

SANFORD, NORTH CAROLINA—Mr. Hugh R. Perry, general manager, Lee Brick & Tile Co., says: "We have adapted full use of Additive-A clay conditioner to all our production. It enables us to give our customers finer quality ware. We have eliminated chippage, laminations, size-and-texture variations. Additive-A has lowered our power requirements at the machine, given us greater green brick strength and decreased dryer losses. In addition, Additive-A is easy to use in our process."

For descriptive folder on Additive-A, write to:
Chemical Products, Department BCR-121,
Kimberly-Clark Corporation, Neenah, Wisconsin



Contributing Associate S C P I Kimberly-Clark

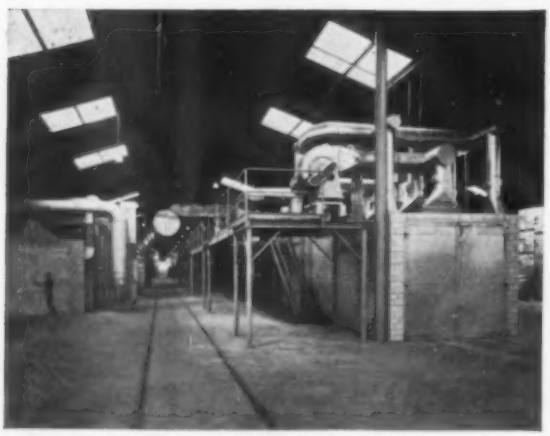
Circle Service No. 13

Now in operation for **STARK CERAMICS, INC.**

. . . their second high performance, high capacity

DRESSLER KILN

Multi-Burner Recuperative



This large new Dressler kiln for Stark Ceramics, Inc. at East Canton, Ohio adjoins their original 315 ft Dressler kiln built in 1957—at that time the largest in the glazed structural tile industry. The new kiln is 345 ft long, with cars having loading width of 87 ins. and loading height of 60 ins. This Dressler kiln, like its companion unit, is of recuperative* multi-burner design, with special provision for oxidizing large amounts of carbon and pyrites in the clay, plus the controlled cooling required for glazed hollow ware. Proper maturing of body and glaze is maintained by four zones of automatic temperature control and automatic furnace pressure control. When your particular firing problems call for an *engineered* kiln, consult with SWINDELL-DRESSLER.

*****70% of combustion air is pre-heated in the ware cooling zone; only 30% of the air is drawn from outside . . . a method of firing saving 12% to 20% or more of fuel costs, depending upon operating temperatures.*

ENGINEERING SERVICE: Swindell-Dressler Corporation provides a complete engineering service for the ceramic industry in the design and construction of new plants, and modernization of existing facilities. Consultations arranged gladly on request.

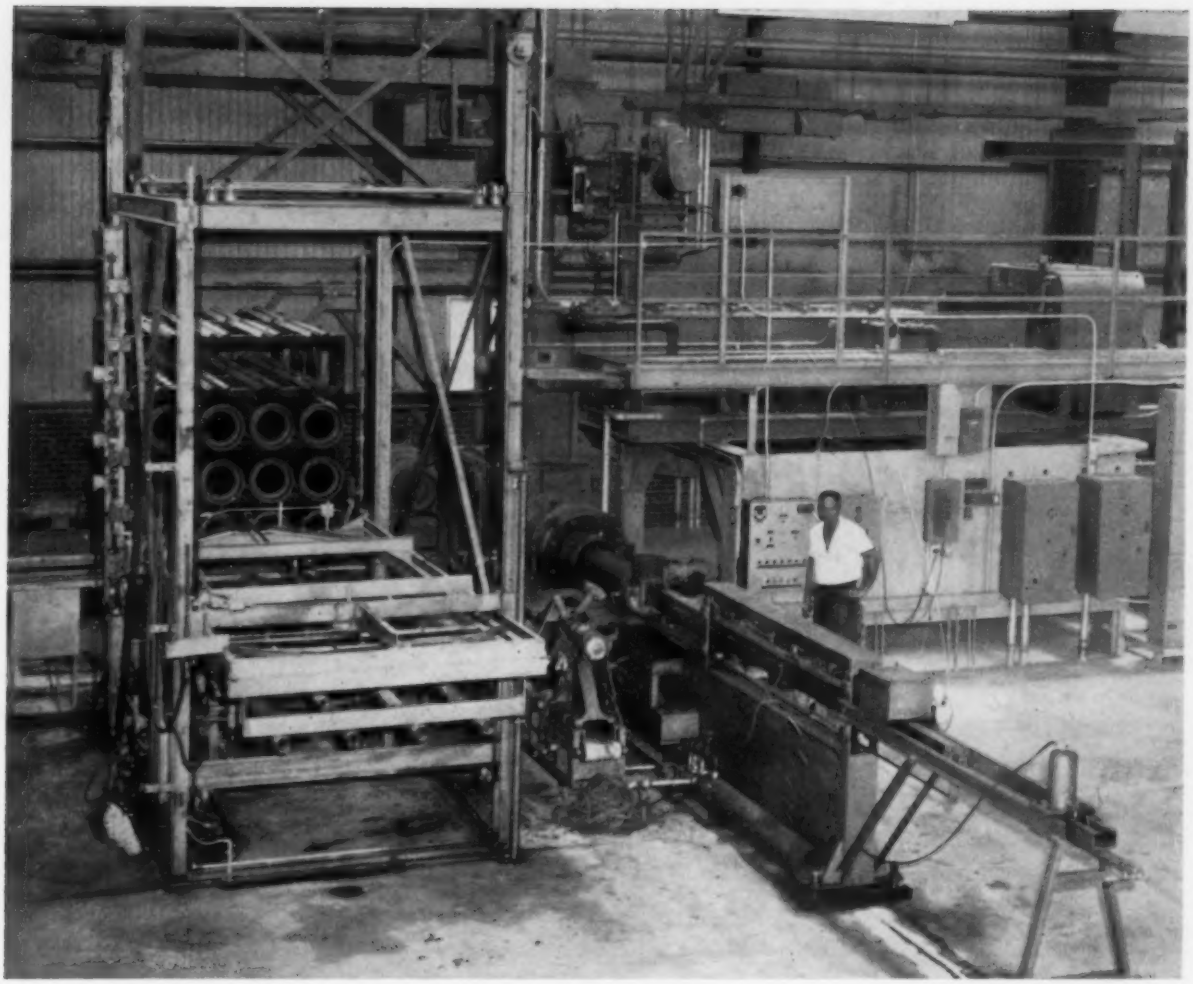
SWINDELL-DRESSLER CORPORATION

Engineers and Manufacturers

PITTSBURGH 30, PA.

The SWINDELL-DRESSLER CORPORATION of Canada, Ltd., Ottawa, Canada

Circle Service No. 17



Another Complete ***PEARNE and LACY*** *Automatic Finishing and Handling Installation for Horizontal Drying of Clay Sewer Pipe*

This installation consists of the following units:

1. Sewer pipe die
2. Hydraulic die locker
3. Caterpillar
4. Former rod
5. Automatic finishing station
6. Rack loader
7. Control panel
8. Hydraulic pumping unit

Write for complete operation details.

Engineers and Manufacturers of Automatic Handling and Finishing Equipment for the Ceramic Industry.

P. O. Box 3366, Terminal Annex
Los Angeles 54, California. Phone: CU 3-1268

Eastern Representative
Dwight B. Hendryx, 6621 Darlington Rd., Pittsburgh, Pa.

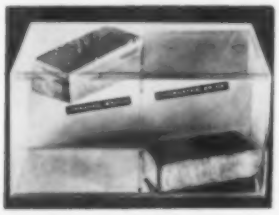
Circle Service No. 18

PEARNE AND LACY INC. MACHINE COMPANY

MATERIALS & EQUIPMENT IN THE NEWS

Water Repellent

A new masonry water repellent, based on recently developed premium grade silicone resins, assures a perfect water barrier without impairing the 'breathing' properties of all



above ground masonry. The new repellent stops destructive penetration by wind-driven rain and ends cracking and spalling caused by retained moisture within the masonry pores. 'MWR' is clear and invisible and will not stain the masonry surface. All performance tests of major specifications are met by this new repellent. *Harco Chemical Co.*

Circle Service No. 60

New Castable

A new refractory castable developed for low rebound gun placement for blast furnace use has set a new high for resistance of castables to carbon monoxide disintegration.

Results of tests conducted by an independent testing laboratory to A.S.T.M. standards indicated an unusually high degree of CO resistance for this company's new Kaogun-BF, as compared to conventional castables recommended for blast furnace use. Kaogun-BF showed no significant change in structure or strength while conventional castables completely disintegrated or showed severe break-up in the CO atmosphere. Test samples were first preheated in normal atmospheres at 1750 F following the recommendations of blast furnace operators for maximum service conditions. The samples were then subjected to a carbon-monoxide atmosphere at 900 F for 40 hours (ASTM C-288-56). *The Babcock & Wilcox Company Refractories Div.*

Circle Service No. 61

Lift Trucks

This company has expanded its line of lift trucks with the addition of the F-120, a 12,000-lb. capacity unit. The new truck broadens the capacity ranges

of Allis-Chalmers lift trucks which start at 2,000 pounds.

Design, engineering and construction of the F-120 provide the ruggedness demanded by the heavy-duty characteristics of material handling in steel mills, factories, warehouses, stevedoring and other jobs where heavy loads must be handled.

It has a heavy-duty industrial frame with solid-section members of all-welded construction. This provides a solid base to hold the power train in alignment for long wear and low maintenance. Precision-type hardened alloy steel gears, semi-floating axles, and anti-friction bearings are used in the heavy-duty double reduction drive axle. *Allis Chalmers Mfg. Corp.*

Circle Service No. 62

Low Cost Feeder

According to the manufacturer, the new model NF-1440 Navco feeder is being used to move gypsum with a moisture content of 15%. It delivers 40 tons of material per hour @ 80 psi. Trough is 40" long x 8" deep x 14" wide.

The manufacturer also states that because of Navco's patented simple design, the unit is operating under extremely difficult conditions with no breakdowns or maintenance problems. Navco's exclusive "one-piece" vibrator design eliminates body assembly bolts, cuts vibrator maintenance up to 80%. Navco feeders are easy to install, will operate in hazardous atmosphere, inclement weather or magnetic dusts. Flow can be controlled by regulating air pressure from 20 to 80 psi and the vibrator action is silent with an air cushioned piston the only moving part. *National Air Vibrator Co.*

Circle Service No. 63

Pallet Lifters

This company's pallet lifters speed up handling and transporting of pallet loads with hoists, monorail, jib, yard and bridge cranes. They save time in loading and unloading vehicles not generally accessible to fork trucks, such as barges, gondolas and open top trucks. They have many uses in moving pallet leads between floor levels and across plant areas where truck aisles do not exist. They supplement the use of fork trucks in crane areas at very low cost. Nationwide acceptance and repeat orders from the who's who of the industry are proof of their satisfactory performance and economy. *Cady Metal Fabricating, Inc.*

Circle Service No. 64

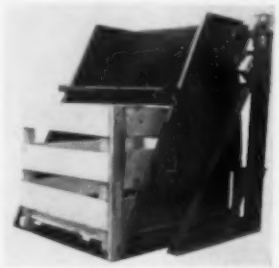
Toggle Press

New Type 750-ton heavy duty Hydraulic Press—hydraulically operated with 40 H.P. unit—no pulleys, bearings, belts, gears, shafts, cams, pitmans or moving side bars—change in brick thickness from, say, 3" to 1" can be made in approximately one-half hour—maintenance charges but a fraction of pulley presses—capacity, 2,000 to 2,500 standard firebrick per hour. *International Clay Machinery of Delaware, Inc.*

Circle Service No. 65

Hydro Dumper

The Hydro Dumper is designed for dumping heights up to 60" with capacities to 6,000#. The load is lifted and pivoted near upper end for dumping or feeding into chutes, conveyors, vats, mixers, trucks,



freight cars etc. The dumper can be furnished with its own integral box or can be equipped to empty box trucks, skid boxes, pallet boxes etc. used in industrial plants. Portable or stationary models are available. *Conveyors & Dumpers, Inc., Div. Mercury Industries.*

Circle Service No. 66

Block Machine

Combining low initial cost, low operating expense and the ability to turn out a wide variety of high quality concrete block, a new hand-operated block machine is now being marketed.

The new compact machine has been designed for two primary uses—to serve in non-industrialized countries and isolated areas where hand labor is plentiful and mechanized

(*Continued on page* 21)

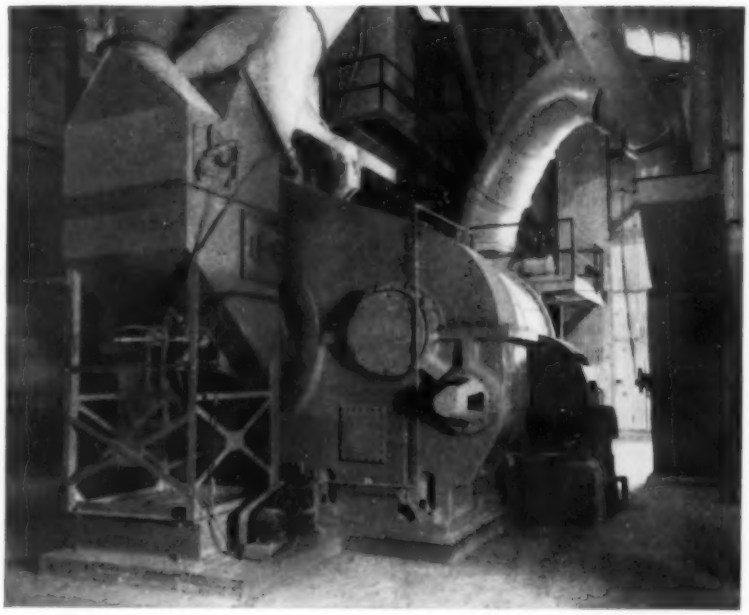
Circle Service No. 15 ⟶

SEASON'S GREETINGS

FERRO

LOWER
production costs with a
KENNEDY
air swept grinding system

The KENNEDY Air Swept Tube Mill Grinding System is the ultimate in high production and low operating cost. The experience of the many owners of KENNEDY Mills has shown that the cost of this mill can be paid in a few years with the savings in maintenance and power alone!



KENNEDY 10′ x 15′ Integral Gear Drive Air Swept Ball Tube Mill and #93 Exhauster Fan in service at the American Agricultural Chemical Co., Pierce, Florida.

HERE ARE A FEW OF THE REASONS FOR THE ECONOMY AND POPULARITY OF KENNEDY PULVERIZING SYSTEMS...

REDUCED MAINTENANCE • Tramp iron and other foreign material cannot damage the system. Years of operation are assured before parts (except for grinding balls) require replacement.

CONTINUITY OF OPERATION • Lubrication and replacement of grinding media is accomplished without shutdown or interruption of production.

MINIMUM POWER • Careful design and construction and a proven pressure lubrication system insure a high mechanical efficiency.

HIGHER PRODUCTION • Single grinding units are built for capacities to 100 tons per hour. Production and fineness remain constant, month after month.

LOWER OPERATING COSTS • Dependability of equipment and reliable automatic feed control assure high production with minimum manpower.

CAPITAL SAVINGS • No magnetic separators are required. KENNEDY units require less structural steel and floor space per ton of product.

FLEXIBILITY OF DESIGN • KVS Air Swept Grinding Systems are available for a wide range of capacities and products.

K
V S

Send now for full details on KENNEDY Size Reduction Equipment.

KENNEDY VAN SAUN

MANUFACTURING & ENGINEERING CORPORATION

405 PARK AVENUE, NEW YORK 22, N.Y. • FACTORY: DANVILLE, PA.

Circle Service No. 23

equipment scarce, and to add flexibility in large plants which desire to keep their larger machines in continuous operation on a few types of block.

The small machine can actually operate with no accessory equipment and a single small electric motor to vibrate the pallet table. In this condition, the feed drawer is charged manually, with hand-mixed aggregate prepared at the rear or side of the machine. *Columbia Machine.*

Circle Service No. 67

3 Boom Designs

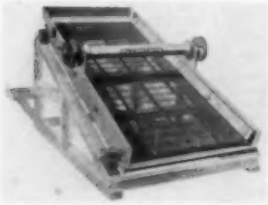
Three different types of booms are now available for the packaged self-powered unloader recently developed. The booms available are a "Hi-Lo" boom, a traveling boom, and a fixed boom of lighter weight for smaller trucks.

With this development, Side-O-Matic Unloaders can handle many different types of products and the proper equipment can be selected for the customer's specific application.

Each packaged "Side-O-Matic" has its own gasoline engine to power a hydraulic system capable of lifting and trolleying loads up to 4,500 lbs. with boom at full elevation or fully extended. Each is simply installed by bolting it to the bed of the truck or trailer. *Side-O-Matic Unloader Corp.*

Circle Service No. 68

Vibrating Screen



This pioneer manufacturer of vibrating screen equipment, has announced the availability of a new unit, called the Series 500 Vibrating Screen. Designed especially for lighter-duty screening requirements in chemicals, minerals, food products, agricultural commodities, for sizing, scalping, and dewatering applications.

Features include a unitized vibrator cartridge, easy amplitude adjustment, 98% vibration isolation, push-type tapered bearing removal sleeves, and double piston ring grease seals.—*Overstrom & Sons, Inc.*

Circle Service No. 69

Potentiometer

The Quick-Check is a portable potentiometer that has been designed to give you the accuracy, ruggedness and ease of handling required in a hand-held testing instrument.

Its wide variety of high accurate and easy to read ranges are made available with electronic suppression, minimum span width of 250° F and circuit accuracy of one half of one percent. Among other features include automatic reference junction, shock mounted meter movement, and no knowledge of pyrometry is required for its use. *Pyrometer Service Co., Inc.*

Circle Service No. 70

Continuous Mixer

Fourteen standardized sizes of the new Falls Continuous Mixers are available in single shaft and double shaft models to provide a wide range of selection from standards. Also, custom units can be designed to meet precisely the intended application.

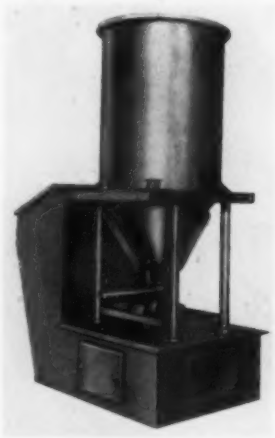
These mixers can handle virtually any mix from basic iron ore treatment to fine chemical powder processing at continuous capacities from 150#/hr. to 100 tons/hr. They can be furnished in carbon steel, stainless, aluminum alloys. They can be jacketed, and can be manufactured to code.

Among design advances are unique paddle contours, adjustable pitch paddles, minimum dust formation, and a very low level of vibration in operation.

Additional data available from Engineering Department, *Fall Industries, Inc.*

Circle Service No. 71

Weight Loss Feeder



A new, high speed, automatic net weight loss feeder has been developed for accurate metering of dry materials for industrial batching or continuous flow processes.

The feed hopper or bin is an integral part of the weighing mechanism of a Thayer Scale, and the material is carried away by a vibratory feeder. The rate at which the system feeds the material is set in grams or other units per minute, by means of three knobs on the control panel. The knobs actually set up gear ratios in a transmission box, which in turn controls the rate at which a synchronous motor drives a flexible shaft. The shaft operates a worm screw on the end of the weighbeam, on which the poise is suspended. *Thayer Scale Corp.*

Circle Service No. 72

Brick Cube Unloader

This company features the Pack-Grab brick cube unloader for handling palletless packages custom built for any cube size. Other features include Rugged, durable steel construction, interchangeable tongs, with low maintenance costs. It adjusts easily and quickly to size of cube, with a total weight of pack-grab of 700 pounds. *American Truck Body Co.*

Circle Service No. 73

NEW LITERATURE

Cleaning Idlers—A bulletin describing its new line of belt saver cleaning idlers is now available.

The new idler is a unique assemblage of resiliently deformable material mounted spirally to produce cleaning action removing granular particles from conveyor belts. The announcement states this new idler was developed for toughest-service conditions on conveyors handling wet, sticky or frozen ores, sand, lime, clay, coal and similar materials. *Webster Mfg., Inc.*

Circle Service No. 74

Fluorspar—A new 12-page booklet on the use of fluorspar for the control of vanadium efflorescence in buff and light face brick has been prepared. In addition to covering technical data and methods for proper use of the mineral, the booklet details the advantages of fluorspar as a chemical admix, discusses the economic aspects and gives a brief resume of the research involved in developing successful control of efflorescence. *The Minerva Co.*

Circle Service No. 75

Saw Care—A highly informative article on the care of masonry saws is now available. Details contained in this article have helped to reduce sawing costs, enabling operators to get longer life from the saw as well as from diamond and abrasive blades. *Clipper Mfg. Co.*

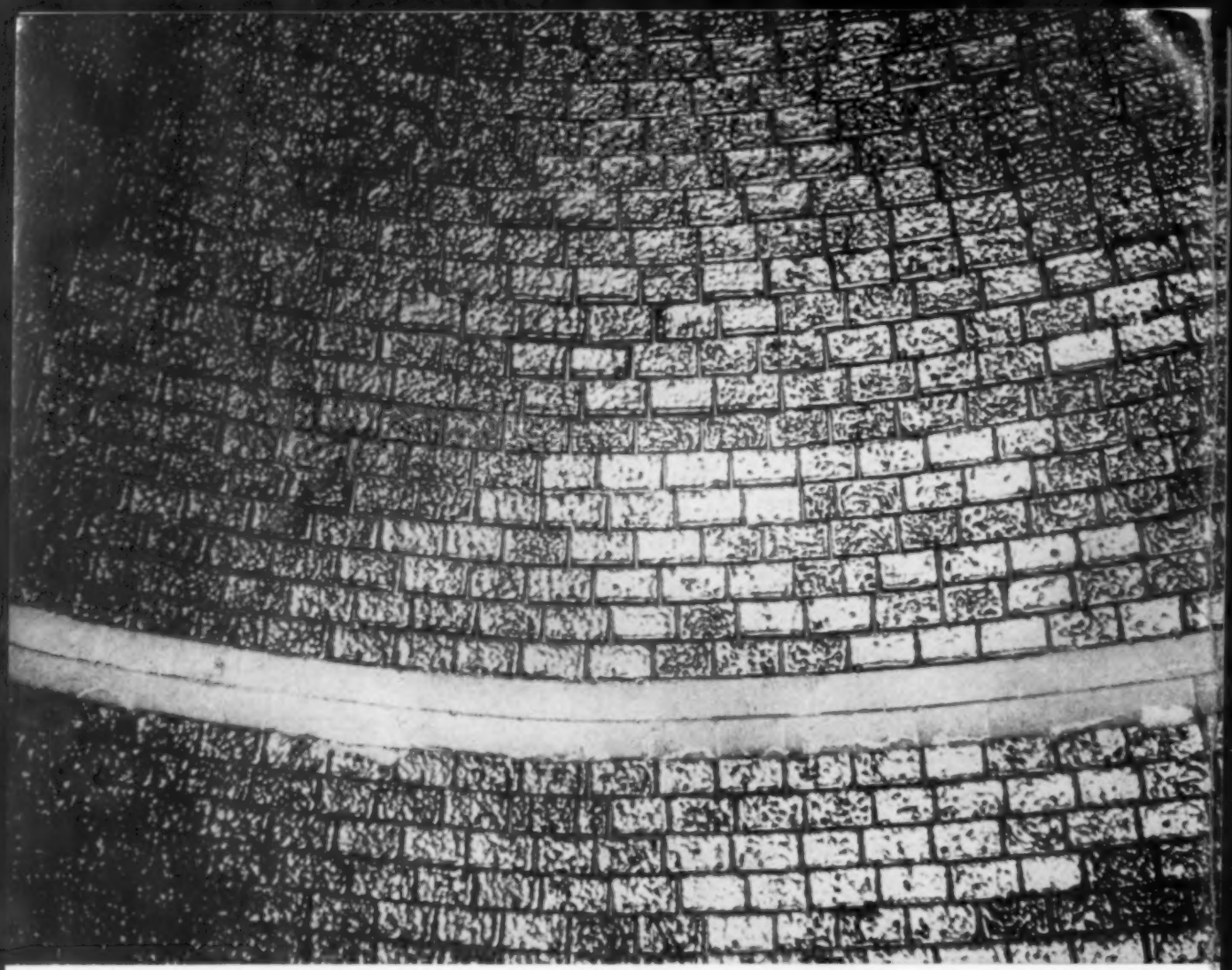
Circle Service No. 76

Loaders—"Modern Perpetual Motion" is defined and explained in a new booklet by that name recently released. Covering applications by both Caterpillar track-type Loaders and Caterpillar wheel-type Loaders, the 8-page 2-color booklet defines the term and gives seven job studies to illustrate it. *Caterpillar Tractor Co.*

Circle Service No. 77

Clay Report—Design information and problems encountered in the design of conveying and storage faciilties for clay in the paper and board industry are discussed in a four-page report now offered. *Fuller Co.*

Circle Service No. 78



Who says there is no difference between insulating firebrick? This unretouched photograph shows two courses of B&W IFB in a salt glaze kiln crown built of competitive insulating firebrick. See how the competitive IFB have glazed after only five burns—clear proof there is no "or equal" for B&W Insulating Firebrick.

B&W

THE BABCOCK & WILCOX COMPANY

REFRACTORIES DIVISION

R639

B&W Firebrick, Insulating Firebrick, and Refractory Castables, Plastics, Ramming Mixes, Mortars, and Ceramic Fiber.

at WELLSVILLE *Fire Brick*

Electronic Controls Maintain Quality with an Accuracy Rating of 99.8%

MOHIE
WELLSVILLE MAKES ALL ITS FIRE BRICK AND REFRACTORY PRODUCTS FROM SELECT GRADES OF WORLD-RENOWNED MISSOURI FIRE CLAYS
WELLSVILLE
MISSOURI

Improving the quality of its products is a progressive policy at Wellsville Fire Brick Company.

In the last ten years Wellsville increased its capital investment over 500% with only a 20% increase in production. As a result this modern plant runs with the precision of a fine watch.

Automation. New machinery. Skilled workers. Electronically controlled grinding and batching equipment (a first in the Refractories Industry) guarantees maximum quality control by keeping errors to less than 2/10ths of 1%. To this has been added the most modern tunnel kilns and the best brick-making machinery now available.

THAT'S WHY YOU CAN . . . SPECIFY WELLSVILLE WITH CONFIDENCE

WELLSVILLE *Fire Brick* **COMPANY – WELLSVILLE, MISSOURI**

Local representatives throughout the nation to better serve you.

Circle Service No. 14

←—Circle Service No. 19

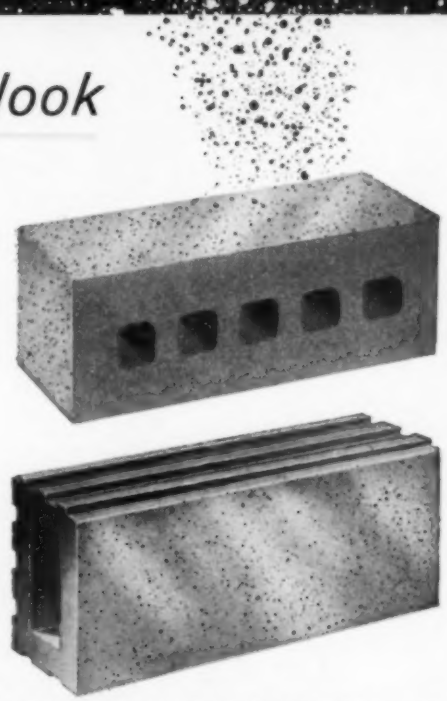
NOW... COLORED SPECKS

to brighten your profit outlook

Add colored specks to your glaze and your brick and structural facing tile will have that "wanted look" architects write into specifications.

Everyone likes specks. Drakenfeld has them in permanently bright colors – greens, pinks, blacks, yellows, blues, browns – in a variety of screened sizes. Single colors will turn out as peppered effects. You can use several colors to produce spattered surfaces. You can use specks of one color in a glaze stained a contrasting or complementary color. Or, it's easy to create attractive scatter patterns with a mix of colors. The possibilities are practically endless.

Architects want color and more color. Drakenfeld Colored Specks now give you another means of capitalizing on this trend. Write for samples, prices and application information.



CALL ON **Drakenfeld** *YOUR PARTNER IN SOLVING COLOR PROBLEMS*

B. F. DRAKENFELD & CO., INC.

Executive Offices: **45 Park Place, New York 7, N. Y.**

Factory and Research Center: **Washington, Pa.**

Pacific Coast Agents:

BRAUN CHEMICAL COMPANY, 1363 So. Bonnie Beach Place LOS ANGELES 54, California Phone ANgelus 9-9311

BRAUN-KNECHT-HEIMANN COMPANY, 1400 Sixteenth Street SAN FRANCISCO 19, California Phone: HEmlock 1-8800

Circle Service No. 21

LATEST IN THE FAMOUS CHAMBERS #30 SERIES-and in LABOR-SAVING, PROFIT-PRODUCING QUALITY

BIG BIG FOR BRICK or TILE

AIR CONTROL SYSTEM

Air and only air can offer infinitely variable adjustments. Each motion—reciprocating and rotational—can be quickly and easily controlled by the operator. Only air control has the ability to self-adjust to surging columns without operator attention.

PLATENS

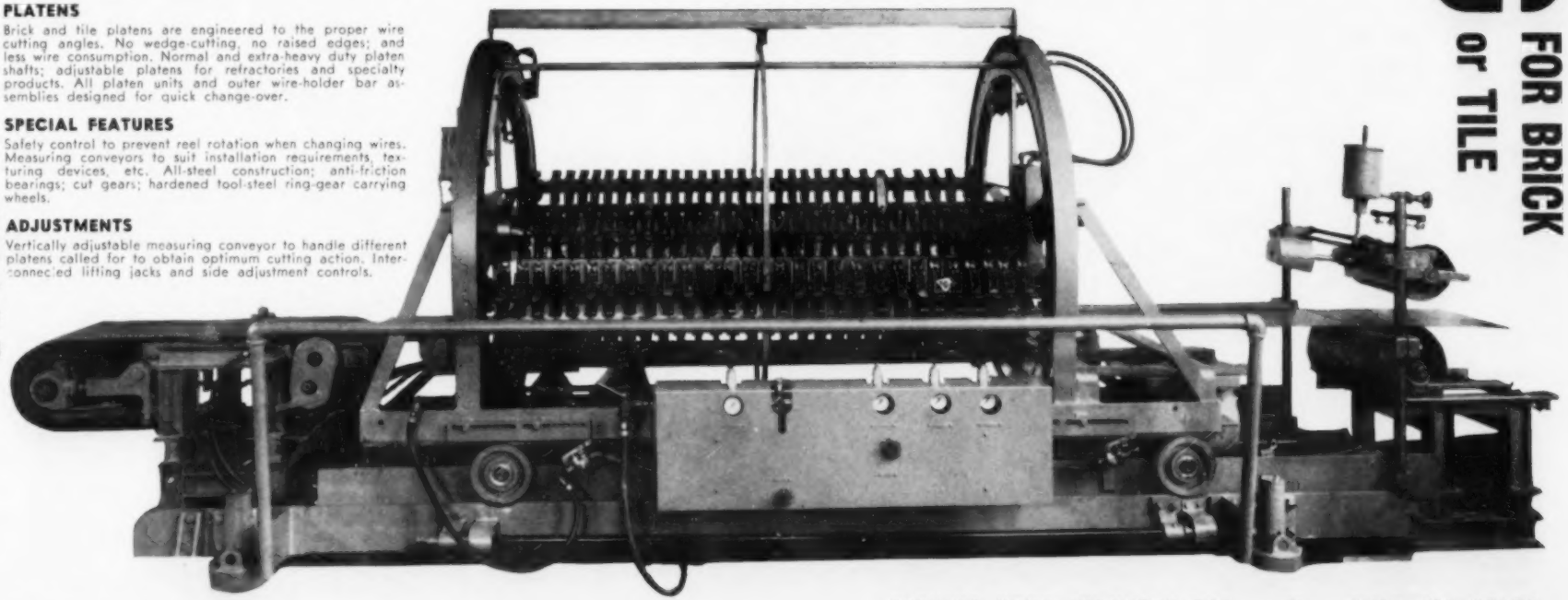
Brick and tile platens are engineered to the proper wire cutting angles. No wedge-cutting, no raised edges; and less wire consumption. Normal and extra-heavy duty platen shafts; adjustable platens for refractories and specialty products. All platen units and outer wire-holder bar assemblies designed for quick change-over.

SPECIAL FEATURES

Safety control to prevent reel rotation when changing wires. Measuring conveyors to suit installation requirements, texturing devices, etc. All-steel construction; anti-friction bearings; cut gears; hardened tool-steel ring-gear carrying wheels.

ADJUSTMENTS

Vertically adjustable measuring conveyor to handle different platens called for to obtain optimum cutting action. Interconnected lifting jacks and side adjustment controls.



CAPACITY IN CROSS SECTIONS

#32 & #33	14" x 14" 12" x 16" 8" x 18"	Green
#30 & #31	11" x 11" 9" x 13½"	Green
PLATEN LENGTHS	42", 54" & 68"	

SERVING YOUR INDUSTRY FOR OVER 100 YEARS

CHAMBERS BROTHERS CO. 1857 1961

52nd & Media Streets • PHILADELPHIA 31, PA.

Circle Service No. 22

IF THE JOB CALLS FOR A SINGLE ROLL --PENNSYLVANIA'S GOT IT

Only Pennsylvania offers you this range of Single Roll Crushers —permitting precise job-engineering of the exact machine for your application.

Pennsylvania Single Rolls furnish the most economical, efficient reduction method you can get for primary and secondary crushing of a wide variety of materials—including cement rock, gypsum, limestone, mine refuse, barytes and other friable ores, shale, slag, chemicals and phosphate rock.

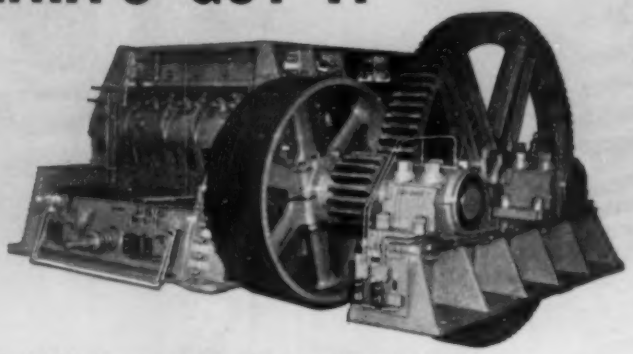
Combining a slow speed operation with high capacities (up to 1200 TPH), all models feature *extremely low maintenance and operating costs.*

Pennsylvania Single Rolls require very little headroom, can be choke fed, and will handle wet, sticky or frozen feeds without showing noticeable decrease in capacity.

FREE BULLETINS

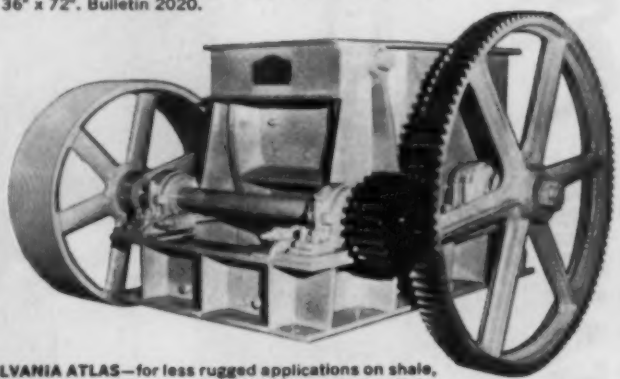
Write for Pennsylvania Single Roll Bulletins, fully describing the many design features, operating advantages and application information on these famous "work horses."

PENNSYLVANIA CRUSHER DIVISION
BATH IRON WORKS CORPORATION
WEST CHESTER, PENNA.



PENNLEHIGH—recommended for primary crushing of cement rock, limestone, gypsum and other friables to a nominal 6-8" product in one pass. Capacities to 1200 TPH. Sizes to 48" x 72" Bulletin 2011.

PENNSYLVANIA HERCULES—for heavy-duty primary or secondary crushing of cement rock, gypsum, mine refuse, coal with rock, limestone, ores, slag, etc. Capacities to 1200 TPH. Sizes to 36" x 72". Bulletin 2020.



PENNSYLVANIA ATLAS—for less rugged applications on shale, slate, coal, fire clay, soft gypsum, soft limestone, chemicals, etc. Capacities to 660 TPH. Sizes to 30" x 60". Bulletin 2025.

PENNSYLVANIA
BATH-BUILT
CRUSHERS

Circle Service No. 26

A Superior Car Top-

made from a superior raw material!

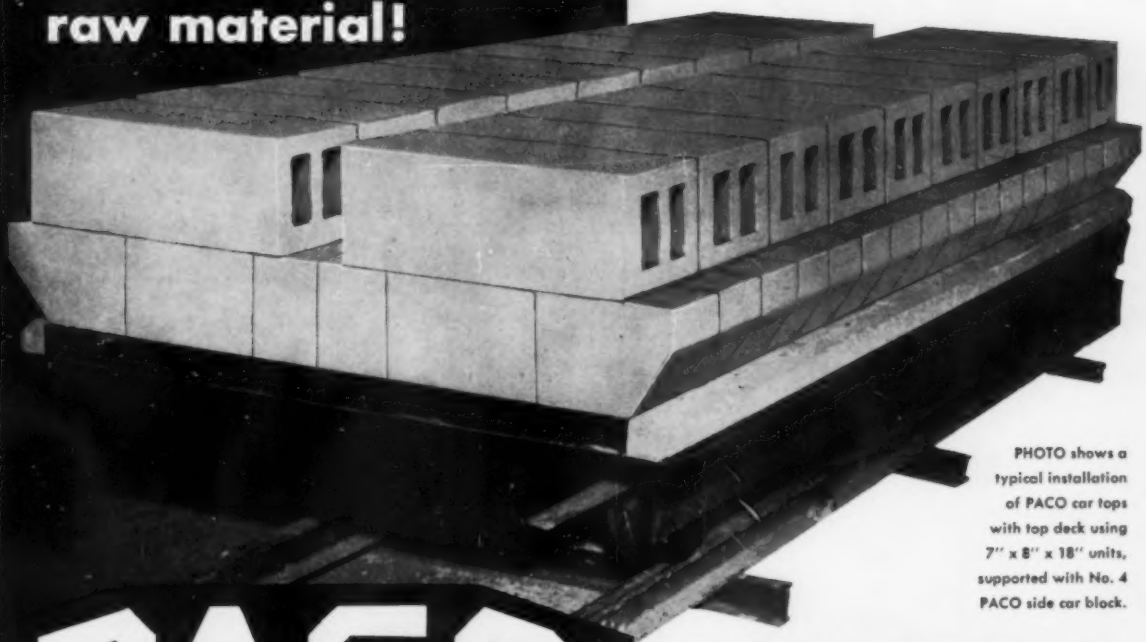
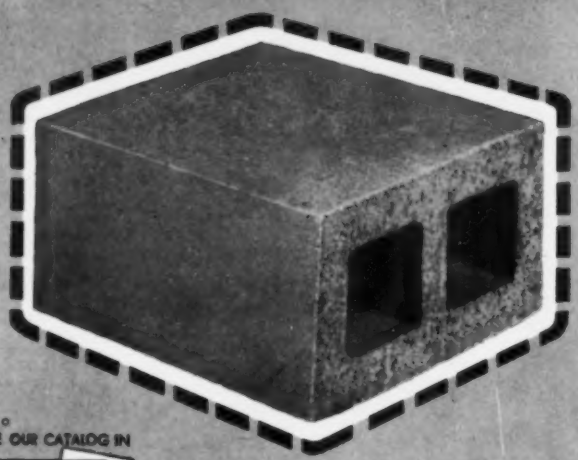


PHOTO shows a typical installation of PACO car tops with top deck using 7" x 8" x 18" units, supported with No. 4 PACO side car block.

PACO CAR TOPS

are made from the mineral pyrophyllite!



SEE OUR CATALOG IN Ceramic data book

Only PACO car tops are made from the mineral pyrophyllite. This is important because it can reduce your car top replacement costs by as much as 50%!

PACO car tops are stronger and highly resistant to thermal shock and hot load deformation. They do not soften below their actual fusion point. And, because PACO car tops are cored, the load heats faster and gases are more evenly distributed. The result is better, more efficient production — at less cost!

There is a PACO engineer as close as your telephone — or write for complete information!

NORTH STATE PYROPHYLLITE CO.

INCORPORATED

Greensboro, North Carolina • Telephone CYpress 9-1441

OTHER PACO PRODUCTS INCLUDE: ✱ High Temp. Cement ✱ Fire Brick ✱ Heatzone ✱ Retort Cement ✱ Blow Off Tile ✱ Side Car Brick ✱ Ladle Mix ✱ Rear Arch Tile ✱ Plastic Cupola Linings ✱ Cupola Blocks

Circle Service No. 12

HYSTER

Now—A Rugged New Lift Truck Built for Rough Going

Only
HYSTER® has it!

4-WHEEL DRIVE. Keeps your materials moving in all kinds of weather and over any terrain.

RESERVE POWER. Complete control for handling heavy materials in the yard, on the job.

BIG 14.00 x 24 TIRES. All-weather traction and excellent flotation.

HIGH GROUND CLEARANCE. Wide track for superior stability.

DESIGNED FOR TOWING. Easily towed to any job site . . . or will also tow loaded trailers.

It adds up to an all-around truck that will give you important job insurance. Ask your Hyster dealer for a demonstration or write for literature.

INDUSTRIAL TRUCK DIVISION — Lift trucks and attachments, mobile cranes, straddle carriers
TRACTOR EQUIPMENT DIVISION — Construction and logging equipment; Heavy-duty trailers
INTERNATIONAL DIVISION — Overseas truck and tractor manufacturing, sales and service

Manufactured in: Portland, Oregon (Home Office) • Danville, Ill. • Peoria, Ill. • Kewanee, Ill.
Australia • Brazil • England • France • The Netherlands • Scotland • Republic of South Africa

HYSTER COMPANY
INDUSTRIAL TRUCK DIVISION
P. O. Box 847 • Danville, Illinois

Circle Service No. 24

EDITORIAL

Is Your Price Right?

It is more important now than at any time since World War II to be sure your company is working at a profit. That profit must be based on a rather comfortable break-even point and maintaining a good cushion for profitable operation.

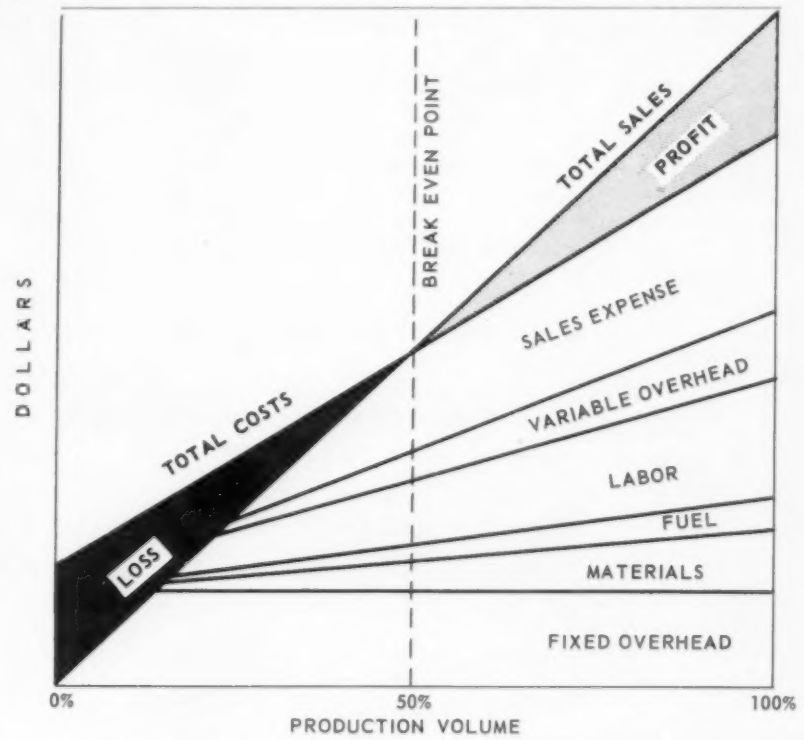
Every manufacturer must establish and know from day to day what his break-even point is. The point should be as near to 50% production volume as possible. Some operators have let it slide to 70% of capacity, which is on the dangerous side.

The break-even point is arrived at differently by different industries. Fundamentally, however, it is the point at which all costs on the one hand are equal to all revenues on the other and it is measured in terms of percentage of capacity production.

Before a manufacturer can arrive at a true break-even point, he must have a good cost accounting system and really know his costs and expenses.

The executive must also be alert to forces and ideas which will affect his costs and his gross income. For instance, is he making the proper products? If he is making several products is the ratio of one to the other such that his profits are satisfactory? Is his product a profitable one or is he in a rat race of competition and low prices?

The executive must constantly be alert to competition both from within his industry and from without. If too many companies make the same product prices become depressed as supply exceeds demand. He must be willing to make changes in his



product lines. If outside competition invades his market with another material at a lower price, his must modify his product or seek out new products to make from his raw materials and with his manufacturing know-how.

There are two phases of the business cycle which must constantly be kept in mind in any discussion of break-even points. First there is the time when the business curve is steady, competition is rough and profits are hard to come by. The importance of a low break-even point under these conditions is obvious. Second is the sharp upward curve or boom. To have a low break-even point in advance of a boom will net exceptionally good profits when the boom takes place.

The government, as in the case of steel, is putting on pressure to hold the price line. This cuts off one method of controlling the break-even point. A price increase, where possible, is a rapid solution but it is not always possible nor even advisable.

Modern equipment, new processes and automation are basic and significant ways to achieve a lower break-even point. With labor costs high this is a must.

Each of the contributing factors to total costs can be attacked individually to bring down the total and thereby the break-even point, the fixed overhead, costs of materials, cost of fuel, labor costs, variable overhead and sales costs.

Ideally, the price must be right, the product profitable and in demand, competition normal and the market unsaturated. If any of these factors gets out of balance it can lead the way to price cutting, the break-even point rises and the panic is on.

REFRACTORIES / 1962

THE CONSUMER SPEAKS!

A complete industry report...
coming in January Brick and Clay Record

- **What's wrong with today's refractories?**
- **How can they be improved for the customer?**
- **What will be the future requirements?**
- **What must the industry do to meet these requirements?**
- **PLUS the refractories industry reply to the above requirements.**

ALL INDUSTRIES SPEAK!

Steel	**Cement**	**Brass**
Foundry	**Ceramic**	**Lime**
Glass	**Copper**	**Aluminum**

Don't miss it! . . . . . Reserve space NOW!

Deadlines: **Space . . . December 26**
Plates . . . December 29

BRICK and CLAY RECORD

A CAHNERS PUBLICATION/5 SOUTH WABASH AVE./CHICAGO 3, ILLINOIS

NEWS OF THE INDUSTRY

Wins Brick & Cavity Wall House in Contest

Left to right, Charles Wetzler, field engineer, Structural Clay Products Institute, Minneapolis, Mrs. Joseph L. Grear, winner of the home and Rod Antonsen, president, Minneapolis Chapter Concrete & Masonry Contractors Association.

The masonry industry participated in what was one of the largest single promotions of their products in a local market this summer in Minneapolis. Thru an excellent example of cooperation, an all brick and masonry cavity wall house was built and donated as the grand prize in the Foremost Dairies Summer Sweepstakes.

Features included heating and plumbing by American Standard in a bath finished by the Ceramic Tile Association. The Minneapolis Gas Co. cooperated to make this an all gas "Blue Star" home. Floors throughout the house are by Armstrong Cork Co., and the kitchen was furnished by Youngstown.

Mrs. Joseph L. Grear, winner of the home and car visited the 3 bedroom, 1300 sq. ft., all masonry home many times during its construction but never expected to win.

Sales at Record High

Sales of W. S. Dickey Clay Mfg. Co., St. Louis, Mo., in the fiscal year ended October 31 were $16,133,000 the largest ever, and compared with $14,541,000 a year earlier. The earnings rise that would stem from the higher sales was held in check by the heavier depreciation charges.

The company is expected to show earnings for the year close to the $1,281,479, or $4.24 a common share. For the 11 months ended September 30, indicated earnings were $1,067,000 against $1,125,000 a year earlier.

Brick Plant Appointment

Bruce Paterson was appointed architectural and distributor sales representative for the Goodwin Companies, it was announced by W. J. Goodwin, Jr.

Paterson, who was manager of the Des Moines Clay Co., plant for eight years, will represent those companies and Goodwin brick and tile plants in Ottumwa, Redfield, Mason City and Oskaloosa. John Hill, production manager for the Goodwin Companies, will be manager of the Des Moines Clay Company plant.

New Sales Manager

L. Jim Taylor was appointed assistant sales manager of Merry Brothers Brick & Tile Co., Augusta, Ga., it was announced.

Taylor comes to Augusta from Columbia, S. C., where he had been vice president and sales manager of Guignard Brick Works. He has had years of experience in the construction field.

He will be assistant to R. W. Mulherin, Merry's sales manager.

See Record Year

Construction will enjoy its best year in history and set a new record for the 17th consecutive year according to F. W. Dodge Corporation's Construction Outlook for 1962, released recently.

Dodge's annual outlook statement, predicts that total construction contracts in 1962 will amount to nearly $40 billion, a gain of 7% over the estimated $37.3 billion for this year.

The Dodge outlook points out that residential building will register its best year of the recent past, and that volume of residential contracts will total $17.5 billion, up 10% over 1961, and non-residential building contracts will register a 4% increase totaling $12.7 billion.

New Manager Named

G. N. Dorn, an employee of the Athens Brick Co., Athens, Tex., has been named plant manager to succeed R. W. Woods, who recently retired.

Dorn, a graduate in ceramic engineering at Ohio State University, Columbus, Ohio, his home town, was plant manager of the Ochs Brick and Tile Co., at Springfield, Minn., for two years before coming to Athens.

Modernization Program

Elimination of a degree of air pollution will be achieved by a $100,000 modernization program started by the Norton Company of Canada Ltd., at its Beach Road Plant.

Furnaces will be converted to use natural gas supplied by United Gas Ltd., and new kilns will be installed throughout the plant.

Joins Metropolitan

The appointment of Neill Boldrick as executive vice president of Metropolitan Brick, Inc., Canton, Ohio, was announced recently by Metropolitan president Donald J. Renkert.

Effective immediately, Mr. Boldrick will be the chief operating officer directly responsible for coordination and control of Metropolitan operations.

Active in the clay products industry for more than 30 years Mr. Boldrick is currently vice president and a director of the Structural Clay Products Institute, and chairman of the SCPI Depletion Committee.

Metropolitan manufactures ceramic glazed structural facing tile, glazed brick, architectural and face brick, paving brick, Keramet tile, "SCR acoustile, SCR brick and SCR masonry panels."

Named Marketing Manager

The Builders Brick Co., Seattle, Wash., and its Mutual Materials Division, formed a marketing department and Ralph E. Yoder was named marketing manager.

Yoder will have charge of coordinating and directing the marketing activities of the company and its various divisions, including research, product development, sales, advertising and public relations.

Yoder recently was in Tempa, Ariz., where he earned the Master of Science degree in Business Administration with a dual major in management and marketing at Arizona State University.

New SCPI Member

The National Clay Products Co., Colorado Springs, Colo., recently joined the Structural Clay Products Institute, national association of brick structural tile and architectural terra cotta makers, SCPI board chairman Douglas Whitlock announced.

President L. E. Welte of the Colorado brick and tile firm was welcomed into the national organization by Whitlock. "We salute the National Clay Products Company as it joins other progressive brick and tile firms all over the U.S. in their cooperative effort to capture a large share of the growing construction market of the 1960's." Whitlock said.

New Agency Formed

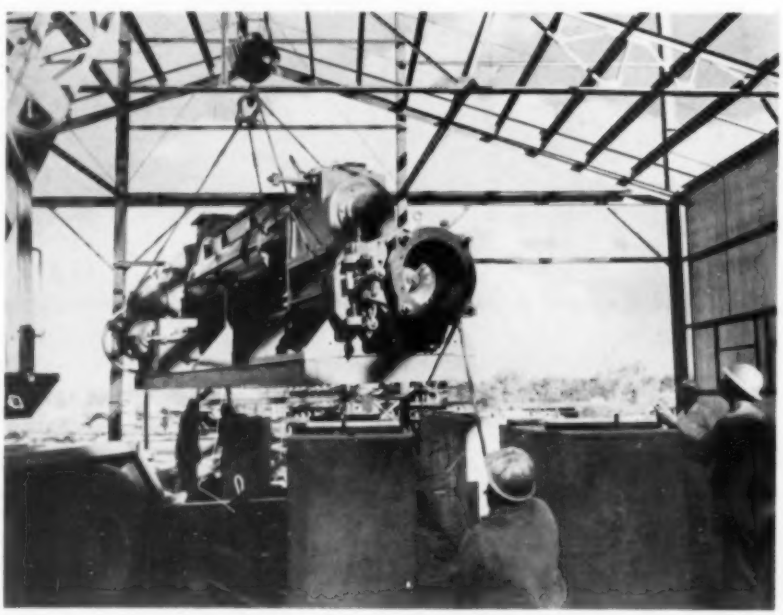
Winfield S. Holland, former president of Clay Products, Inc., of Hartford, and former treasurer of NADD recently announced the formation of a new public relations agency bearing his name. Recognizing the need, the Win Holland Agency is specializing in communicating the message of the individual brick and tile manufacturer in the strongest possible way to his potential customer and the general public.

Not an advertising agency, the Holland group is established within the total area of communication. Acting as consultants in this field, they can lift the entire time consuming task of product and policy presentation from the shoulders of busy sales or administrative executives, it was pointed out.

Sales, Earnings Decline

Natco Corp., Pittsburgh, Pa., reports total net sales for the nine months ended September 30, 1961, were $12,109,094, as compared with net sales of $12,221,443 during the same period last year. Net earnings for the nine months declined, to $150,141 as compared to 1960 nine-months earnings of $36,366. Natco president Roy A. Shipley attributed the earnings decline to increased manufacturing costs and general economic factors. He cited wage increases and increases in the cost of fuel, primary materials, equipment and supplies as circumstances adversely affecting the manufacturing costs.

Brick Machine Produces 16,000 Per Hour



A 40,000-pound extruder, or brickmaking machine was installed in the new plant of Robinson Brick & Tile Co., Denver, Colorado. It produces a continuous column of clay at the rate of 16,000 brick an hour. The machine was manufactured by J. C. Steele Co., Statesville, N. C.

Tour Alton Brick at Open House

Packaged brick form an unusual background for outdoor barbecue at Alton Brick Company's recent Open House for their distributors and St. Louis area architects.

One of the country's most fully automated brick manufacturing plants was recently the scene of two open house plant tours that stirred up the interest among men in the St. Louis construction picture.

Better than two hundred and fifty architects, engineers and mason contractors were the guests of the Alton Brick Co., at their Maryland Heights plant in St. Louis county.

Among the several special events was a demonstration of Alton's automatic brick-strapping method for the "packaging" of 100-brick packs, a modern handling procedure which is rapidly growing in demand and popularity.

Particularly timely was the display of a fully equipped basement-type fallout shelter which was especially constructed above ground for the tour. Official government brochures were handed out.

Acme Brick Appointment

J. M. Baggett was appointed Arkansas Division sales manager for Acme Brick Co., Ft. Worth Texas. He has been with the company for 35 years. Baggett joined the company at Fort Smith and has worked in several Acme branches in Texas, and Oklahoma. In 1945 he was appointed branch sales manager at Ft. Smith and held the position since then.

He replaces John F. McIntire who was promoted to field sales manager. McIntire will coordinate the sales program in all the territory served by Acme.

SCPI Architect Meetings

The SCPI's architects informational meetings will be held in New Orleans on January 9 and Memphis on January 10. Part of the program will be the showing of a new film on "Patterns and Texture" of the same caliber as the very well received "Man and Masonry".

The New Orleans meeting will be a Producer's Council Program sponsored by clay product representatives who are members of P.C. In Memphis the meeting will be sponsored by most of the clay product dealers and the two associations.

Report Stock Split

The board of directors of R. G. Varner Steel Products, Pine Bluff, Arkansas, announced recently a five-for-one split of the firm's common stock.

Prior to the split, the stock was quoted in the range of 12 bid and later quotations—reflecting the change—have been around 2.5 bid and 3 asked.

Varner makes and distributes a line of pre-engineered "uniframe" buildings under the trade name Varco.

R. G. Varner, president, said after-tax earnings during the first four months of the current fiscal year amounted to 88 cents a share, based on the number of shares outstanding before the split.

Appointment at Gladding

R. A. Ferguson, Jr., was recently named product manager, masonry sales, Gladding, McBean & Co., Los Angeles Calif. In his capacity, Ferguson will be responsible for the direction and guidance of a number of sales support functions including sales forecasting, estimating, pricing, sales education, etc., for all masonry products marketed by the company. These include ceramic veneer, solar screen, contour CV, roof tile and Lincoln coated face brick.

Ferguson joined Gladding, McBean & Co., in 1951. He has held a variety of sales management positions with the company, the most recent as sales manager for the refractories and structural products division in Seattle.

Income Tax Refund

A refund of $345,000 in federal income taxes was reported recently to stockholders of Pacific Clay Products, Los Angeles, Calif., by John D. Fredericks, president.

He said a new law clarifies the computation of clay depletion allowances for the years 1951-60 and as a result the company has reduced a $1,350,000 reserve for prior year taxes to $717,500.

Mr. Fredericks said 1961 nine months sales were $10.2 million compared with $10.4 million a year earlier and net income was $1.69 a share as compared to $1.84 for the same period in 1960.

With leading blockmakers... ***BESSER MEANS BETTER***

Besser-Matic loader and unloader keep pace with the speed of the Besser Vibrapac.

Gormley has a banding machine at the cubing station (above). After cubes are formed, they are banded before being conveyed to the yard (see below), thus eliminating the need for pallets and saving their expense.

First Besser-Matic in Toronto area

increases block production, reduces culls

Gormley Block Co., Ltd., Gormley, Ontario, Canada, has been in business since 1945. Their experience during the sixteen years since then has led Mr. James Barr, vice president of the company, to say, "For high production and dependability, you can't beat Besser block equipment. You can't outdo the Besser people, when it comes to reliable service, either!"

Mr. Barr knows first hand how Besser equipment performs profitably. The company's Besser-Matic—first in the Toronto area — does all these operations *automatically:* Loads green block. Indexes new racks. Unloads cured block. Depallets cured block. Returns empty pallets. No off-bearing is required and no power hoist. There are no culls due to careless handling. Gormley's annual production of 8" equivalents is about 2,000,000 units for residential, commercial, and public construction.

Does *your* concrete block equipment operate at a profit — consistently? If not, ask your Besser representative to show you how you can be money ahead by switching to a Besser Vibrapac — Besser-Matic combination. / Besser Company, Dept. 139, Alpena, Mich., U.S.A.

A1-288

Sales, Earnings Rise

Gladding, McBean & Co., opened their new offices in Portland, Oregon recently. During the opening it was disclosed that sales and earnings continued to rise during the third quarter of 1961.

C. W. Planje, chairman and president of the Los Angeles based ceramics firm revealed that sales during the July-September quarter totaled $9,186,000 compared to $8,508,000 in the previous period while the net profit amounted to $552,000 as compared to $502,000 during the April-June quarter.

McBeans' nine month record results however continued to lag behind the same period in 1960. Sales for the year to date were $25,116,000 with net profit of $1,404,000 compared with sales of $27,288,000 and earnings of $2,066,000 for 1960.

India's Mystery Brick

The government of Maharashtra State in India sent a team of archeologists to investigate a claim that an ancient temple 400 miles from Bombay was built with unsinkable and unbreakable brick.

Many visitors have said that when the brick of the tottering temple are thrown into an adjoining "sacred tank" they just float on the surface. The brick weighing eight pounds each, are also said to be unbreakable, and could not be broken even if a fully-loaded bullock-cart passed over them.

Experts think the ancient Hindu engineers who constructed the shrine may have used some rare formula to make the brick. They note that when heavy floods recently lashed the area the temple was among the few structures to survive intact.

SCPI Official Resigns

J. W. Stryker, executive director of the Structural Clay Products Institute, recently submitted his resignation as an official. Stryker plans to re-enter the real estate business in Virginia.

Clay Products Firm Closes

The Springfield Clay Products Co., Springfield, Ill., terminated business recently. The company had been in operation since 1919. Forty men worked at the plant when operating.

The company which manufactured farm drain tile and hollow building tile, ceased to function because of the "high cost of manufacturing", according to H. B. Helmstetter plant manager.

Appointment at H-W

Max R. Carruthers, previously assistant superintendent of the Harbison-Walker Refractories Co., works at Mt. Union, Ohio has been appointed superintendent of the company's Windham works, Windham, Ohio.

Announce Cash Dividend

Warren A. Hood, president of Mississippi Industries, Inc., Jackson, Miss., announced a 2% cash dividend was paid to 1700 Mississippi stockholders on record as of August 1, 1961.

Mississippi Industries, organized in August last year with former Governor Hugh White as chairman of the board, has eight subsidiary companies at present including the Atlas Tile and Brick Co., in Shuqualak, Miss.

Holl Reappointed

Governor Mike DiSalle of Ohio reappointed Barton Holl, president and general manager of the Logan Clay Products Co., Columbus, Ohio, to the Ohio Water Pollution Control Board for a term ending October 1, 1965.

Sales Off, Net Up

For the nine months ended September 30, A. P. Green Firebrick Co., St. Louis, showed net sales of $29,781,350 compared with $30,229,927 for the 1960 period.

Net income for the period increased from $1,281,781, in 1960 to $1,444,228 for the same period in 1961.

Spinks Plays Host at Steak Dinner

It's steaks and smiles for these executives of H. C. Spinks Clay Co., Inc., Paris, Tennessee. Left to right: R. B. "Rich" Carothers, Jr., Spinks vice president; R. B. "Dick" Carothers, Spinks president and Harry "Bo" Carothers, Spinks vice president, have just been served their steaks at a dinner where they were hosts to more than 250 Boy Scout leaders. R. B. "Rich" Carothers, who is also president of the West Tennessee Area Council, Boy Scouts of America, invited all workers in their 19-county fund drive "to come to his place for a steak dinner." Spinks officials are active in many outside activities such as Boy Scouts, soil conservation and the promotion of progressive agricultural practices.

SCPRF News

W. G. Temple, Denver Brick and Pipe Co., was elected chairman of the Structural Clay Products Research Foundation at the November meeting of its 1961-62 board of management in Washington, D. C. Bill Temple succeeds A. C. "Cec" Frisk, who served as chairman for the two years preceding. Mr. Frisk, president of the Goodwin Companies, Des Moines, Iowa, has now assumed his new duties as president of Structural Clay Products Institute.

Re-elected to the office of vice-chairman was D. J. Renkert, Metropolitan Brick, Inc. R. H. Bickerstaff, Bickerstaff Clay Products Co., replaces Mr. Temple as SCPRF's treasurer, while Harry Plummer, SCPI, continues as secretary. (For more on the SCPI meeting see page 48).

Twenty-six members of the 1960-61 board of management were re-elected. The seven *new* board members elected at the meeting were:

C. H. Alwine, Alwine Brick Co., New Oxford, Pa.; O. A. Boren, Boren Clay Products Co., Pleasant Garden, N. C.; W. Eckley, U. S. Brick Co., Tell City, Ind.; R. J. Galvin, Sheffield Brick & Tile Co., Sheffield, Ia.; Burnette Henry, Acme Brick Co., Fort Worth, Tex.; Earl O'Neal, Hope Brick Works, Hope, Ark.; R. D. Robinson, Tri-State Brick & Tile Co., Jackson, Miss.

* * *

The United States Patent Office has issued a patent on "SCR acoustile", one of SCPRF's developments in the field of new products. "SCR acoustile" is essentially a structural clay facing tile having excellent sound absorption and sound transmission loss characteristics.*

Conventional clay masonry units have never been recognized for their ability to absorb sound because of their densities and high degree of surface imperviousness. The sound absorption of dense brick or tile is in the range of only 1 to 3%. Usually, any material capable of absorbing at least 15% is considered useful for sound control. Typical acoustical ceiling materials used today have sound absorptions ranging from 55 to 85%. Exposed concrete block have sound absorptions ranging from 22 to 55% when unpainted. Painting such block, however, reduces their ability to absorb sound by as much as 90%.

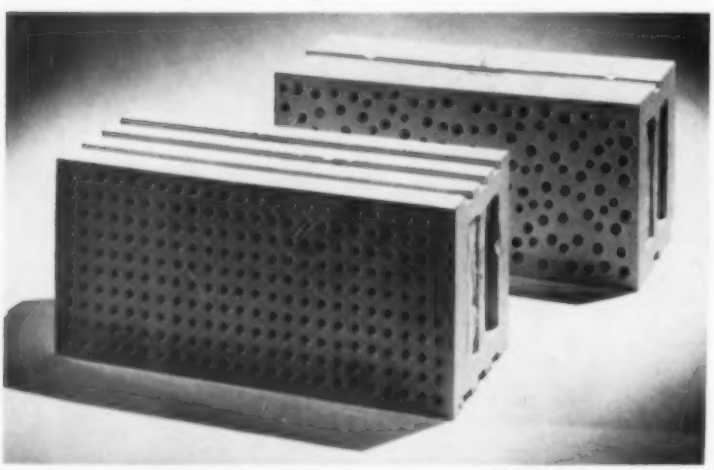
"SCR acoustile" units have average sound absorptions between 60 and 65%, plus excellent sound transmission loss properties. Furthermore, because of the permanent colors and finishes that can be obtained in typical clay facing units—either glazed or unglazed—no painting is needed.

Four manufacturers are currently producing "SCR acoustile," at present only in ceramic glaze finishes. The accompanying illustration shows two typical units, both in the "6T" series face size. It is also available in the "8W" series.

Basically, the "acoustile" is a structural clay tile unit whose face shell (or shells in the case of a 2-faced unit) are punched or drilled with holes which open into an interior cell filled with a fibrous glass pad. It is this feature that provides the sound absorption property of the unit. An interior solid vertical web helps reduce the sound transmission through the unit.

Although currently being produced only with ceramic glazed finishes and in only the 6T and 8W series, "SCR acoustile" may be manufactured also as an unglazed facing unit and in any of the face sizes in which structural clay tile are normally produced.

*Reg. U. S. Pat. Off., SCPRF Pat. No. 3,001,602



Two typical "SCR acoustile" units, both in the "6T" series face size. See text.

* * *

The increasing emphasis being given to urban renewal, including the field of remodeling in general, has resulted in more and more people becoming interested in the use of thin clay brick slabs as an ideal material for use in residing old structures. SCPRF's attention has been called to a number of structural clay products manufacturers who are producing ½ in. or ¾ in. thick brick slabs for such purposes. Also, a number of manufacturers have requested information on "SCR re-nu-veneer"*, a veneering method developed by SCPRF a number of years ago specifically for the huge and lucrative remodeling market. At present, only one producer is licensed to manufacture and sell "SCR re-nu-veneer".

One most encouraging note in the field of remodeling is the emphasis the National Association of Home Builders is giving it. NAHB is urging its members to diversify their business by actively participating in the remodeling market along with their new home construction. As more and more reputable home builders enter the remodeling field, much of the stigma attached to remodeling by the questionable operations of the so-called "suede-shoe" boys will be removed.

* * *

The "theme" of the 27th annual convention of the Structural Clay Products Institute, held in Washington, D. C. on November 6 and 7 was "Research". The speakers, from both within the clay industry and outside of the industry, all emphasized the importance and need for research and "scientific experimentation" by today's building industry.

*Reg. U. S. Pat. Off., SCPRF Pat. No. 2924963

ORGANIC BINDERS

GLUTRIN

(liquid)

or

GOULAC

(powder)

Especially suitable for increasing the molding and dry strength of

- BRICK
- CLAY REFRACTORIES
- NON-CLAY REFRACTORIES
- SILICA REFRACTORIES
- REFRACTORY CEMENTS
- PLASTIC REFRACTORIES
- TERRA COTTA
- STRUCTURAL TILE
- SEWER PIPE
- SAGGERS
- FLUE LINING

Small amounts required—easy to use. Economical and larger production of first quality product absorbs the investment many times.

Many successful users. We'll be glad to submit samples and our suggestion on procedures and amount needed.

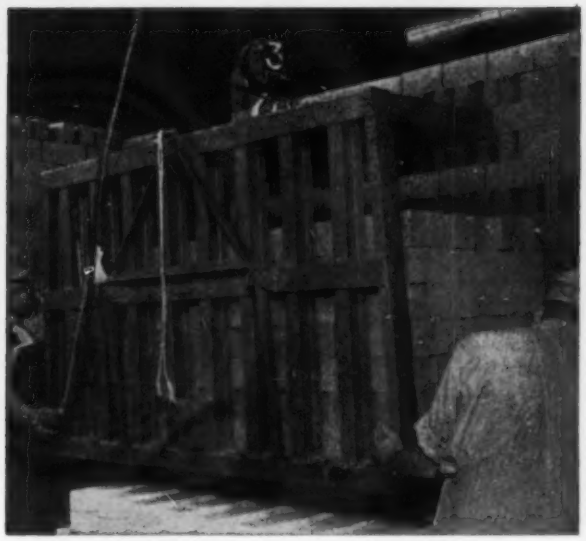
Robeson Process Company

P.O. Box 960 • Erie, Pa.

Plant - Johnsonburg, Pa.

Circle Service No. 40

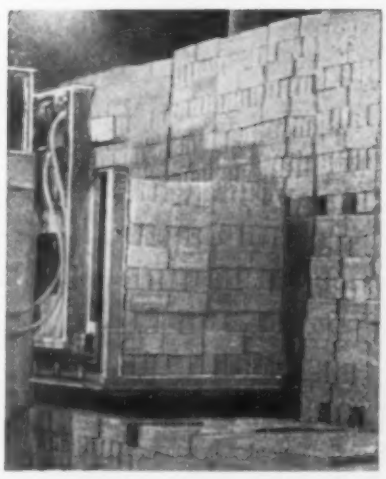
Make Brick Handling Easy...



PRIESTER Brick Forks

- Save Time
- Save Money
- Save Labor

Also Priester truck cranes for unloading from delivery trucks. Write for bulletin.



Brick in units of any size are handled by Priester Brick Forks. Automatic operation simplifies and speeds brick handling, setting and drawing kilns, loading and unloading trucks and box cars.

Forks with flap grippers for cored and solid brick. Give service . . . take the hard work out of brick handling. Write today for more information.

BRADNEY MACHINE CO., INC.

Middletown, New York

Circle Service No. 41

Hynes Joins American

Frank J. Hynes recently joined the American Refractories & Crucible Corp., North Haven, Conn., as director of research and control according to Robert M. Terry, president.

Hynes comes to his new post from Frenchtown Porcelain Co., where he was chief process engineer. A graduate of Ohio State University, he received his bachelor of science degree in ceramic engineering, and is an active member of the American Ceramic Society which has published several of his technical papers.

Hegeman Appointed

Ray Hegeman was recently appointed assistant to the president of Refractory & Insulation Corp., Port Kennedy, Pa.

He has been with the company since 1935. Beginning as an office boy, he became a sales engineer, assistant general sales manager and three years ago, general sales manager. He will continue in this capacity in addition to his new duties.

Portable Crushing Plant

Exclusive rights for production and sale of a unique "Uni-Twin" portable crushing plant have been granted Lippmann Engineering Works, Inc., Milwaukee, Wis., by Johnson Welding & Equipment Co., Madison, a Lippmann distributor.

The 39′ long, 12′ high, 8′ wide plant has been granted 7 patent claims with 15 more claims yet to be decided.

The Uni-Twin portable offers twice the screening area of comparable size crushing plants. Material is moved from the feed end to discharge point continuously over screen sections. The crushers also discharge directly on screens. As a result all finished material, including "fines" are discharged without rehandling. It is available in a wide variety of combinations; with twin jaws, jaw and roll crushers, and twin roll or gyratory crushers.

Changes at Corhart

Corhart Refractories Co., Louisville, Ky., recently announced two executive changes in the firm's sales staff.

John K. Meyer, vice president, was named assistant to the president, Edward C. Leibig.

Benjamin P. Colosky was appointed

J. K. Meyer

B. P. Colosky

general sales manager. He was formerly staff sales manager.

The company announced that Meyer will be responsible for both domestic and overseas trade relations. He will also direct Corhart's international activities and coordinate these activities with Corning Glass International, S. A.

Colosky joined the company in 1957 as a development engineer. He later served as manager of sales technical services and was named staff sales manager in February 1961.

Giant Refractory Blocks

Giant refractory blocks, one of which is large enough to do the work of some 300 of the smaller brick normally used in lining sidewalls of steel making furnaces, are to be put into production immediately by Cleveland's Basic, Inc., a pioneer in the refractory industry for 50 years.

The product, which will be marketed under the trade name of Basilblock, is made from deadburned dolomite and coal tar pitch, which has been employed successfully in Europe to line electric and open hearth steelmaking furnaces, Thomas converters and vertical kilns for burning lime. No comparable product has been available to American steelmakers.

Reinforced with an internal steel framework, the blocks range in size to 72 inches high and more than 60 cubic feet and weigh up to six tons.

Basic, reports, for instance, that in electric furnaces savings in brick cost will range up to 40% and savings in installation and labor costs up to 30%. The cost of maintaining the blocks in service is said to be comparable to that involved in the use of brick.

Basic also anticipates that the new block may also be used in such areas as cupola linings and open hearth furnace backwalls.

Porter Modernizes

A two and a half million-dollar expansion and modernization program at H. K. Porter Co. refractories divisions Buckeye Works, Wellsville, Ohio has been completed.

The refractories produced by Buckeye Works are primarily used to line the ladles used in the pouring of iron and steel.

The expansion program consisted of two separate projects: (1) a new, modern mechanized mine and (2) new modern tunnel kilns and related facilities.

This new mine, known as the Pleasant Valley mine, is one mile from Wellsville. Its location was chosen because it provides access to the Lower Kittanning vein of clay which is regarded as probably the best ladle brick clay in the country.

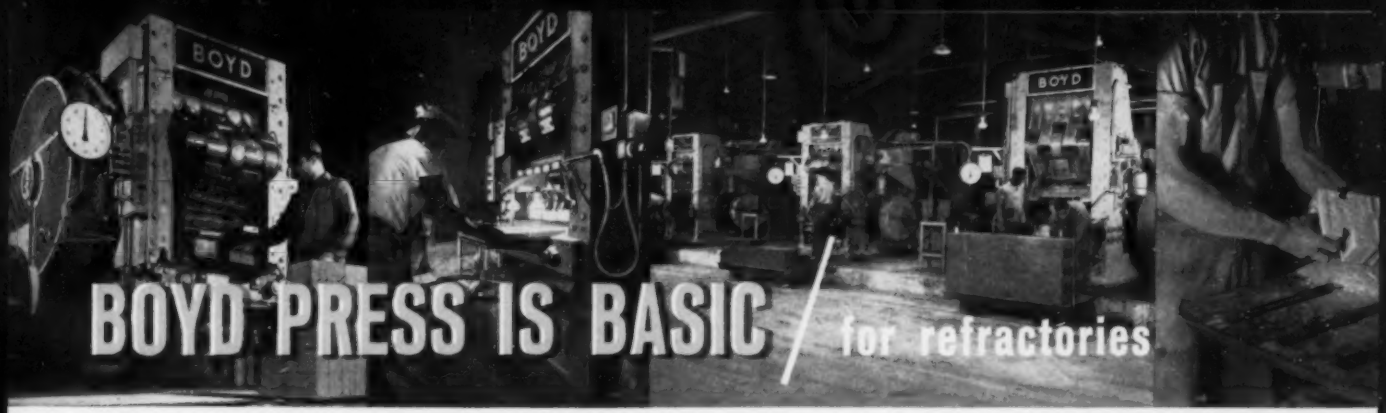
Kaiser Renames Division

Kaiser Refractories, Division Oakland, Calif., announced that the name of its sales subsidiary in the Chicago area has been changed to that of the parent organization.

Edgar H. Pratt Firebrick Co., will now operate under the name of Kaiser Refractories Division as a direct sales warehouse office.

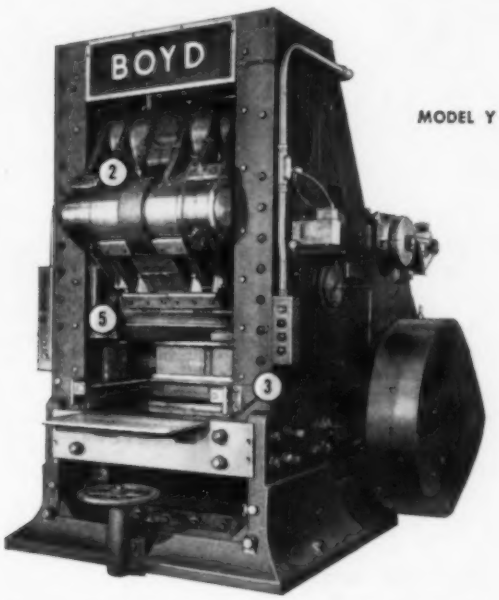
The warehouse handles a complete line of Kaiser Refractories' materials, including fireclay, silica, magnesia and a wide variety of refractory specialties.

Circle Service No. 28 ⟶



BOYD PRESS IS BASIC / for refractories

Meet increased customer demand for dense, stable low porosity brick with Extra Duty MODEL Y Press



MODEL Y

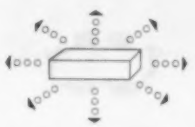
These exclusive features help Model Y make the most of high compaction pressures:

BOYDAMATIC

Easily operated control system provides full automatic operation—or selective combination of manual and semi-automatic controls over various press operations.

TOP 'N BOTTOM ACTION

Pressure is exerted upon both the top and bottom of brick in the mold—to reduce density variance to a minimum, insure better, more stable brick.



DE-AIRING PAUSE

Momentary pause in press operation allows air to escape before final compression stroke. You get dense, finely proportioned brick and reduce distortion in firing and use.

1 **NEW BEARINGS.** High speed shafts are fitted with sealed roller bearings; low speed shafts with renewable plastic inserts.

2 **STRONGER TOGGLES** are of all steel rib construction. Load bearing surface increased 100%. All bronze or steel bearing surfaces are replaceable.

3 **HEAVIER FRAMES.** Heavier journals and more ribbing increase stability and rigidity of the Boyd Press.

4 **ALLOYING,** heat treating and flame hardening make gears, crankshaft, side bars and crosshead tougher, longer wearing—smoother running.

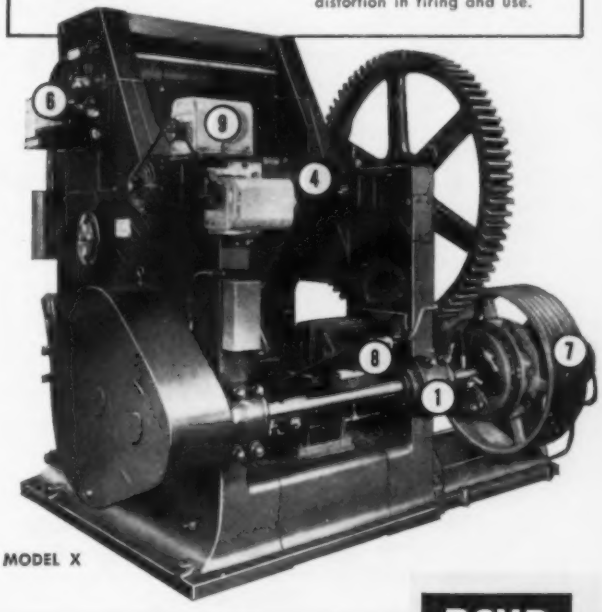
5 **END GRAIN FORMICA** used for frame wear plates. Is durable, smooth and easy to replace. Is non-"galling."

6 **AUTOMATIC FORCE-FEED LUBRICATION** is positive, thorough. Takes element of human error out of routine press maintenance.

7 **AIR OPERATED CLUTCH-BRAKE** gives instant response to *Boydamatic* controls. Is positive and trouble-free.

8 **AIR OR HYDRAULIC CHARGER** is completely flexible. Can be operated continuously with press cycle or controlled for single stroke by switch.

9. **"BRAINS"** for the new flexibility of the Boyd Press is found in this sequencing rotary cam limit switch.



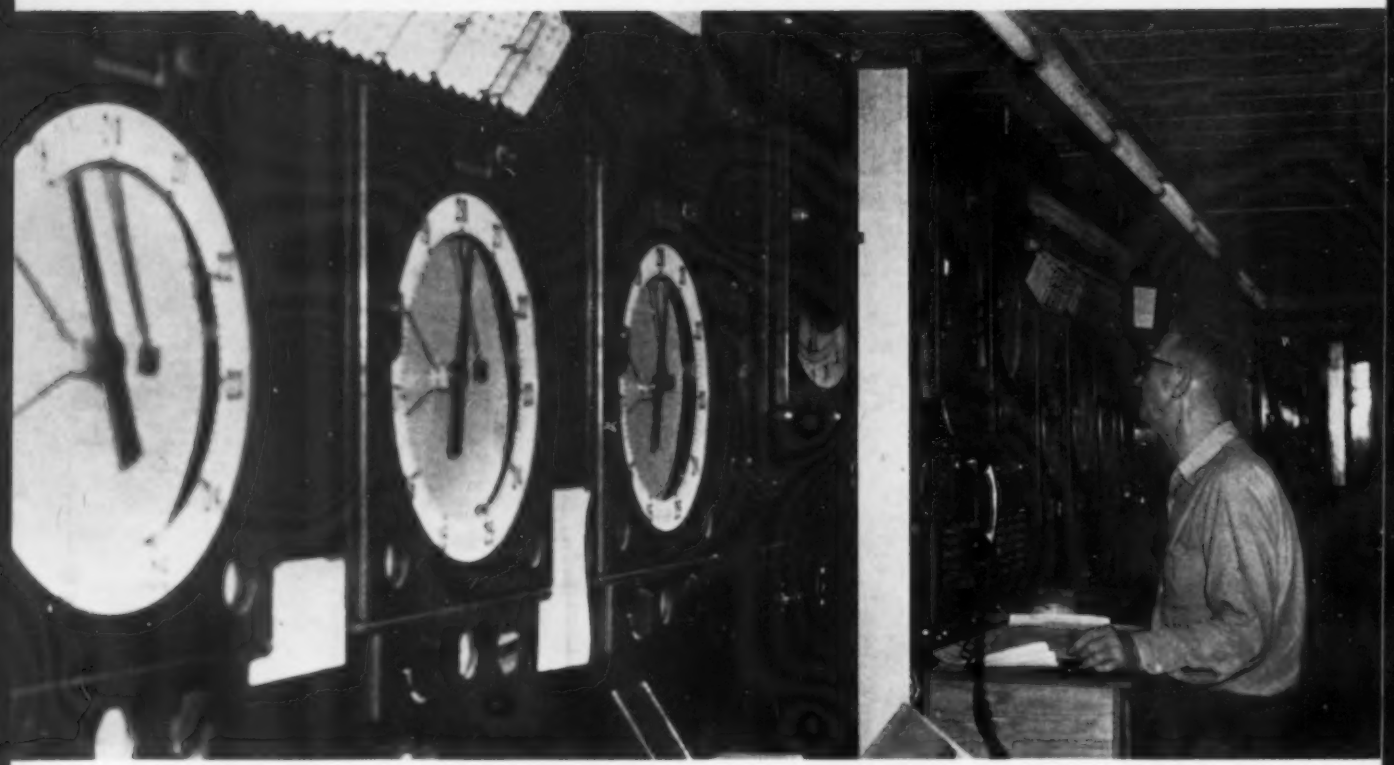
MODEL X

CHISHOLM, BOYD & WHITE COMPANY

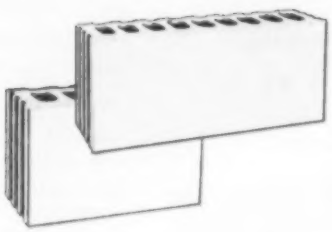
A SUBSIDIARY OF WEHR STEEL COMPANY

610 W. 57TH STREET • CHICAGO 21, ILLINOIS

BOYD
POWER
PRESS



The control systems for both tunnel kilns are housed in this air-conditioned room. Included in this system are controls for seven traveling thermocouples in each kiln.



Pioneer Clay Products Manufacturer Expands Again with . . .

New Facilities for the Future

Stark Ceramics, Inc., Canton, O., adds second tunnel kiln to increase potential to 14,000 tons monthly. Faith in the future of clay products leads manufacturer to erect plant which will be adaptable to all major changes in manufacturing techniques and products. Facilities planned for manufacture of lightweight glazed structural units.

The need for more efficient production along with faith in the future of clay products in the construction field led Stark Ceramics, Inc., Canton, O., to take a close look at their already modern and gigantic operations. Realizing that modern industry has to stay on top of every new trend in manufacturing that emerges from day to day, management saw in its own operation a means of up-dating its manufacturing facilities and at the same time saw new methods of cutting its operational costs. So the planning started.

What was needed to obtain the additional production necessary to satisfy customer demand? How could any new facilities be utilized to coincide with the new lightweight structural clay units which were successfully made at the Stark plant on an experimental basis, and which showed exciting promise as one of the new clay products of the future? In designing new facilities, what labor saving and handling devices should be explored for possible installation? The answer to these questions lay in two things: a new tunnel kiln, bigger and more elaborate than the one which was completed in 1957;

Left, dry glazed ware is set on the kiln cars at this setting station located in the new building addition. About seven tons of ware are set on each car.

Below, the dry ware is transferred to an elevated system of tracks which take the dryer cars over the setting tracks. The setting tracks are so located that eventually this process will be eliminated by the installation of a machine which will enable direct setting.

and a sizing and grading system that would enable sorting and packing directly from the kiln car as it left with no intermediate handling.

Add 50,000 Square Feet

And so in June of 1960, an additional 50,000 square feet of building area was added to the existing plant and construction started on a new Dressler tunnel kiln. By April of 1961, the kiln was in operation and the first products were produced from the new plant.

The new Dressler tunnel kiln is thirty feet longer than the first tunnel kiln built at the plant and which was reported in the November, 1958 of BRICK & CLAY RECORD. In addition to the extra length, other minor changes were made in the new tunnel kiln, which, like the first, is tailored to the peculiar burning conditions which Stark encounters in its operation. The new kiln has been provided with additional recirculation, so that with the combination of the extra length and this additional circulation in the kiln, the new installation is now producing approximately 112 tons per day, compared to the lesser capacity of the original kiln.

The new kiln at Stark is 345 feet long and holds 37 cars. It is set up to fire the above 112 tons per day on a 55-hour cycle. The average car loading runs about seven tons and average production is 16 cars. The car setting area is 7′-3″ wide x 9′-2″ long x 5′-0″ high. This is the same loading cross-section as that of the first kiln and represents the largest setting area used today in the glazed structural tile industry.

Pyrite and Carbon Problem

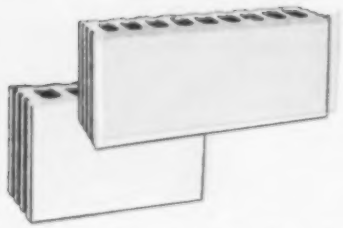
The clays and mixtures of clays which Stark uses have a particularly nasty pyrite and carbon problem in their burning. To accomplish burnout in a minimum time, the kiln was equipped with a front-end recirculating zone in the vestibule, in addition to two 15′-0″ high temperature recirculating zones for rapid movement of hot air at the beginning of the preheat.

Each of these recirculating systems has burners mounted in it with fresh air bleeds on the intake side of the recirculating fans to provide hot clean air for disassociation of the pyrite and carbon burnout in the body. In addition, arch nozzles and slots have been provided in the early preheat through which hot air from the first rapid cooling fan can be introduced to control oxidation and temperatures in this area of the kiln. The recirculating fans are all platform mounted and connected to the kiln with masonry duct construction to withstand the severe acid conditions within this area of the kiln.

Thirty-four North American excess air burners were installed in the preheat zone to further accelerate oxidation and burnout from the body.

The furnace zone is approximately 86′-0″ long and has a total of fifty-six burners which operate in four zones of automatic temperature control. Here the kiln is recuperative with about 70% of the air for combustion having been preheated in the cooling zone and then inspirated into the kiln at the burner positions in the furnace zone. This gives a maximum fuel efficiency, since only 30% of the combustion air is drawn

(*Please turn page*)



as cold air from outside the kiln. Fuel savings from 15% to 20% can be realized with this arrangement.

In the cooling zone there are two rapid cooling sections, each 22-feet long, followed by regular cooling. These rapid cooling sections are controlled manually at the present time but are set up for the addition of automatic control if desired at a future date. All sorts of variations in tonnage on a kiln car are possible with structural tile, and if these changes in loading are severe, it may be desirable to go to automatic control of the cooling in order that these changes can be taken into account to hold the desired cooling curve.

In addition to the automatic temperature control, the kiln is also equipped with a furnace pressure control unit to vary the draft to meet changing atmospheric conditions.

Designed for Future

The entire plant area was designed with the future in mind, in that sometime in the not-too-distant future, it is intended that glazed ware shall be set directly on the tunnel kiln car, further increasing overall efficiency of the operating plant. Currently the ware is dried on dryer cars then reset on the kiln cars.

With the development of the lightweight unit by SCPRF and the resulting forming of the Mapleton Development Corp., Inc., which will manufacture lightweight aggregate, and of which Stark Ceramics, Inc., is a member, it is intended that these new facilities will be used for the manufacture of a lightweight structural glazed tile. Tests indicate that this new block can be fired three times faster than the existing unit, and the design of the plant and tunnel kiln has been taken into consideration for the eventual manufacture of this product.

Cars leaving the tunnel kiln move directly to the unloading stations where the tile are graded and distributed by conveyors to either a packaging station or a grinding station, according to the type of product being made. At the grinding station, high-speed Gardner grinders perform the grinding operation. By using a 30-inch wheel rotating at 1000 RPM, or a periphial speed of approximately 8000 feet per minute on the grinding surface, it is possible to remove as much as ¼" of the tile on one pass through the grinder.

The grinding wheel companies at first thought these speeds were impractical for an operation of this kind, but it has proved very successful and Stark is contemplating even higher wheel speeds, when grinding wheels become available.

Order Handling

Incoming orders are handled by the sales department and then routed to the scheduling and traffic department where the new order is compared against the backlog and the production rates of the various types of ware. After the order is fitted into the schedule, production orders are issued covering it and the manufacturing divisions proceed to plan production. The sales of Stark Ceramics are handled through a six-man department who supervise and control some 75 franchised dealers scattered throughout the United States and Canada. Many of these agents have represented the company for more than 40 years and are considered by the company to be an integral part of the organization.

The company enjoys what may certainly be considered an enviable work record. Under the same management since the company was founded in 1910, there has never been any lost time caused by labor difficulties. Trying to produce and constantly improve a better product, the company employs approximately 300 full time employees.

Above, other ware is loaded directly onto conveyor leading to grinding apparatus. Two Gardner high-speed grinders are used for finishing the sides of the tile.

Left, the fired ware is unloaded and shaded and graded immediately at unloading station. It is then boxed or sent to the grinding station on this two-elevation belt conveyor for further handling.

Part One—How to Make

Clay Block on Concrete Block Machines

By GILBERT C. ROBINSON
Chief, Ceramics Department
Clemson College

The Zonolite Co., producer of vermiculite, has been very active in research in masonry construction including the development of information on making lightweight clay block. Zonolite is making their information available to industry in the hopes of furthering the development of clay bonded block.

A concrete block machine is capable of forming 1000 block an hour or some 20 tons of ware an hour. It accomplishes this with a total labor expenditure for mixing, forming and setting in the drier of three man hours. This production record compares quite favorably with the extrusion process of which we are so fond.

Different Techniques

Forming clay products on a concrete block machine requires techniques that are somewhat strange and different to the practices customarily used in conventional processes for fabricating clay. A certain amount of plasticity is desirable for extrusion of clay but not in a concrete block machine. Plasticity or stickiness is poison for a block machine. Small amounts of stickiness will gum up its works and cut its fantastic production rate to nothing. This characteristic of block machines places a very special demand on raw materials. The raw material batch must duplicate the consistency, the feel, the appearance of concrete. The machine is designed for concrete and successful production of clay block depends on making a clay mixture that imitates the forming qualities of concrete.

This raw material requirement is accomplished by using a concrete-type formula which includes a certain proportion of aggregate and a certain amount of binding material which replaces the cement component of concrete. The design of the mixture requires an answer to the following questions: What type of aggregate should be used? How much aggregate should be used? What should the particle size of the aggregate be? What quantity and type of binding material should be used? How much water should be used? Should an additive be used? A long series of investigations have been made to try to provide the answers to these questions, but it might be helpful before considering the answers to consider the functions of the aggregates in a block mix.

Functions of Aggregates

Any type of nonplastic material, either natural or manmade, that is available in proper sizes will satisfy the block machine's desire for concrete consistency batches. However, the subsequent firing of the clay block places additional requirements on the aggregate material. It must have good firing characteristics, and it must serve to reduce total shrinkages to very low levels. Quartz aggregate would serve to produce the desired forming qualities but obviously its firing characteristics would be poor. A nonplastic aggregate that shrinks might produce desirable forming qualities but fail to prevent firing shrinkage.

The manufacturing shrinkage of clay block is important because it in part determines the dimensional tolerance of the block. Clay block must be made to close dimensional tolerances if they are to successfully compete with concrete block. Close dimensional tolerances depend on the amount of shrinkage, the uniformity of firing conditions, and the uniformity of materials. A zero shrinkage body is not affected by lack of uniformity in firing or in materials. On the other hand, it is conceivable that a high shrinkage body could be fired to close tolerances provided that it is fired in a kiln with small cross sections with very uniform firing conditions and provided that the batch fed to the block machine remains constant.

The functions then of the aggregate materials are to supply a concrete consistency forming mixture and to control the firing shrinkage of the block within desired limits. The aggregate may also provide other functions such as reducing the unit weight of the block or providing certain textures or colors in the block.

Aggregate Particle Size

There are many possible combinations of particle sizes that will make satisfactory block and this makes it difficult to present precise statements on the effect of particle size on block quality. However, it is believed that an appreciation of the role of particle size can be obtained by considering three size ranges: course, middlings, and fines. These sizes are arbitrarily designated as larger than 14 mesh (coarse), —14 + 65 mesh (middlings), and —100 mesh (fines).

(*Please turn page*)

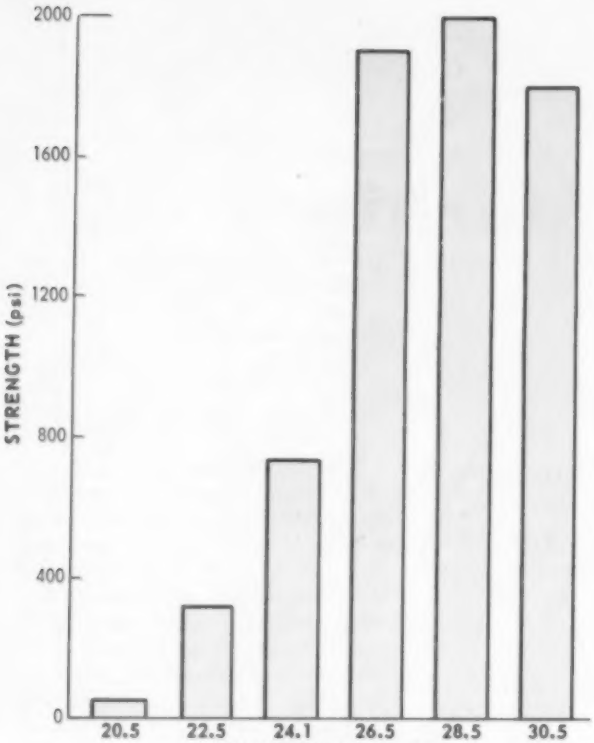


Fig. 3. Strength vs. quantity of water.

Sample No.	Composition	Water of Plasticity %
	80% Aggregate – 20% Clay	
I-A	–1/4" Expanded Clay	28.6
I-B	–1/8" Expanded Clay	24.1
I-C	–14 Mesh Expanded Clay	34.8
I-D	–20 Mesh Expanded Clay	36.4
I-E	–1/8 + 65 Mesh Expanded Clay	26.2
I-F	–1/8 + 48 Mesh Expanded Clay	26.3
I-G	–1/8 + 20 Mesh Expanded Clay	27.3
I-H	–10 + 48 Mesh Expanded Clay	28.1
I-J	–20 + 48 Mesh Expanded Clay	30.9
XIX	30% Shale, 70% Expanded Shale	
A	70% (–14 + 65 Mesh)	17
B	62% (–14 + 65 Mesh) 8% – 100M	17
C	54% (–14 + 65 Mesh) 16% – 100M	18.7
D	38% (–14 + 65 Mesh) 32% – 100M	16.4
E	62% C, 8% (–8 ± 14)	15.4
F	54% C, 16% (–8 + 14)	16.7
G	38% C, 32% (–8 + 4)	15.1

Sample No.	Composition	Water of Plasticity %
II-E	80% –1/8" Expanded Clay – 20% Clay	20.5
II-D	"	22.5
I-B	"	24.1
II-A	"	26.5
II-B	"	28.5
II-C	"	30.5

Clay Block on Concrete Block Machines *(Con.)*

Fig. 1. The influence of fines on the internal structure of samples A, B, C, D, E and F.

The fines are very important to successful block production. Large quantities of fines will cause balling of the block mix, poor forming qualities, and consequently, poor strength and texture. Very small qualities of fines will cause low strengths in the block as it leaves the machine, low dry strength and low fired strength. Low quantities of fines will also make the water content very critical. Samples 19A, 19B, 19C, and 19D in Table I show the effect of the increasing amounts of fines added to —14 mesh + 65 mesh expanded clay aggregate. Notice the increase in strengths with increasing quantities of fines through 16% additions followed by a sharp drop in strength at 32% fines. It is believed that the drop in strength at 32% fines resulted from poor forming. This quantity of fines cause the mixture to ball up (as shown for Sample 19D, Figure 1) and feed and pack poorly into the molding device. This tendency to ball up forms one of the limits on the amount of fines that can be tolerated in the

(Continued)

INFLUENCE OF AGGREGATE SIZE ON BLOCK PROPERTIES

Dry Properties			Fired Properties Cone 5			Appearance			
Strength p.s.i.	Shrinkage %	Compaction %	Strength p.s.i.	Total Linear Shrinkage %	Bulk Density pcf	Size	Type	Filling of Pores	Uniformity
21	+ .5	13.6	99–1200*	2.2	61	Very Coarse	Granular	Open	Poor
105	+ .1	15.5	700–2000*		70	Coarse	Granular	1/2 Fill	Good
79	.5	13.3	1037	2.6	70	Intermediate	Granular	1/2 Fill	Good
88	.2	12.6	778	1.7	70	Small	Sandy	1/2 Fill	Good
28	+ .2	11.4	326	1.1	55	Very Coarse	Granular	Open	Good
48	+ .9	12.8	365	1.7	58	Very Coarse	Granular	Open	Fair
18	+ .1	6.2	84	2.1	53	Extremely Coarse	Granular	Very Open	Good
23	+ 1.5	5.9	246	1.9	52	Coarse	Granular	Open	Good
67	.1	10.1	690			Intermediate	Granular	Open	Good
			1410	2.09	82	Intermediate	Granular	1/4 Fill	Excellent
			1776	2.53	88	Intermediate	Granular	1/2 Fill	Excellent
			4173	3.81	105	Intermediate	Wet Concrete	3/4 Fill	Good
			753	4.90	93	Coarse	Balled Clay	1/2 Fill	Bad
			1667	3.74	93	Coarse	Wet Concrete	1/4 Fill	Bad
			985	3.13	87	Coarse	Wet Concrete	1/4 Fill	Bad
			1272	2.62	86				

* Strength at optimum water

INFLUENCE OF QUANTITY OF WATER

Dry Properties			Fired Properties Cone 5			Appearance			
Strength p.s.i.	Shrinkage %	Compaction %	Strength p.s.i.	Total Linear Shrinkage %	Bulk Density pcf	Size	Type	Filling of Pores	Uniformity
---	---	---	---	---	---	---	---	---	---
		14.6	323	2.0	65	Coarse	Granular	1/2 Fill	Fair
		15.5	700	2.4	70	Coarse	Granular	2/3 Fill	Good
		13.9	1950	2.4	79	Intermediate	Wet Concrete	Filled	Good
		9.8	2000	0.7	79	Intermediate	Wet Concrete	Filled	Good
		11.2	1820	1.5	79	Intermediate	Wet Concrete	Filled	Good

Table I (top) and Table II (see text).

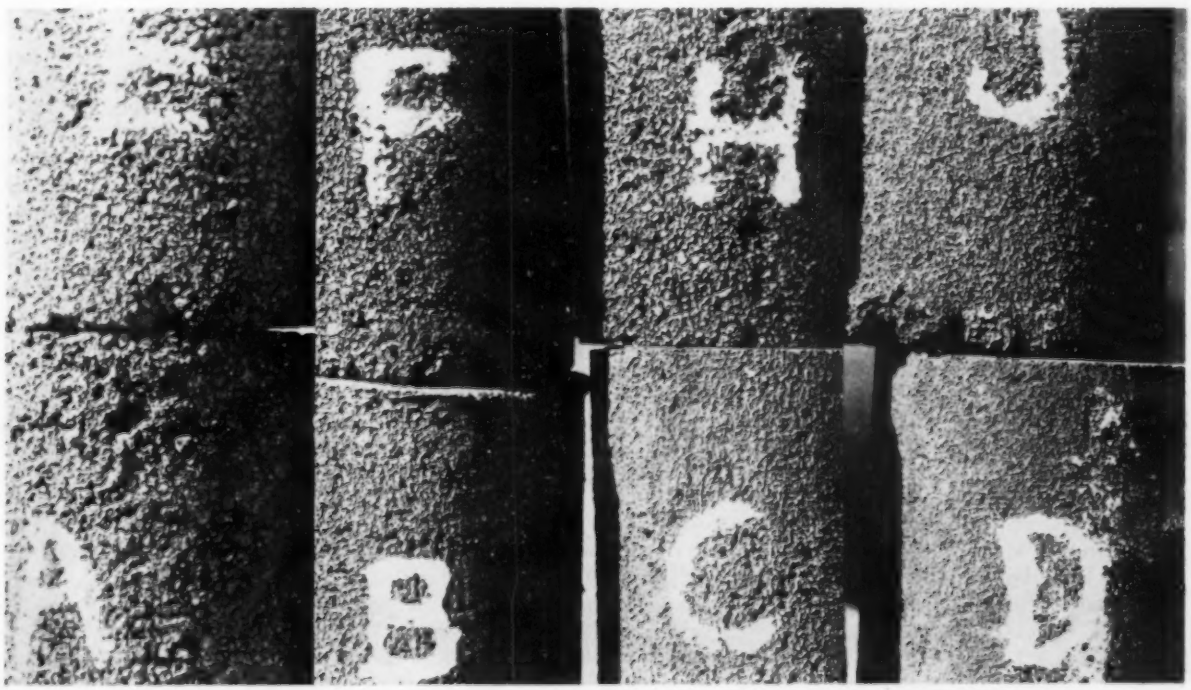


Fig. 2. The variation in surface texture with various size aggregates for compositions I-A through I-J, Table I.

Clay Block *(Con.)*...

Fig. 4. The change in surface texture with a change in mixing water (IID —22.5%; IIB —28.5%).

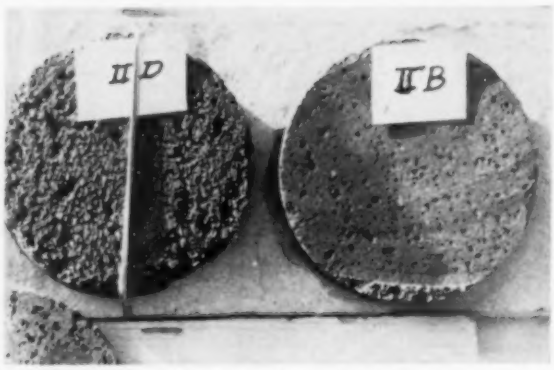


Fig. 5. The change in internal structure with mixing water.

block mixture. Other limiting factors might be surface appearance, bulk density, or linear shrinkage.

The texture of Compositions A and B was granular and of excellent uniformity. The composition with 16% fines was less granular and had more the appearance of wet concrete. The uniformity was good but not of the superior quality of the compositions with lower amounts of fines.

Shrinkage Behavior

The total linear shrinkage increased with increasing amounts of fines. Similarily, the bulk density increased as the larger amounts of fines tend to fill all of the available inter-aggregate pore spaces.

These results seem to indicate the fines should not exceed 16 per cent and preferably be between 8 and 16%. However, it should be recognized that other factors influence the amount of fines that are desirable. The type and condition of the clay binder has a strong influence on this property. A coarse particle size shale will tolerate more fines than will a fine ground shale. A non-plastic shale will tolerate larger amounts of fines than a sticky clay. Increasing amounts of coarse size aggregate will permit the use of more fines.

Samples 1F through 1G of Table I show the effect of eliminating fines from a coarse aggregate sizing. Eliminating the —65 mesh material from sample 1B caused the fired strength to be cut in half. The dry strength dropped from 105 psi to 28 psi. Eliminating the —20 mesh material caused further deterioration in properties. As the mixture became coarser, it became increasingly difficult to control the water. The mixture would change with a 1 or 2% water change from a mix that was too dry to mold properly and hang together to one that would slump on ejection from the mold. The mixtures with fines had a much longer tempering range.

Samples H and J used very closely sized aggregates and were interesting because of the attractive grainy texture that they produced. Samples J used —20 + 48 mesh material, was particularly attractive. It is suggested that where this type of texture is desired that the aggregate sizes should be concentrated in this range. On the other hand, a smoother texture would be more desirable on a block intended for glazing. An increasing amount of fines gives smoother textures.

Little Goes Long Way

So the fines are a little like a pinch of salt of cookery—a little bit goes a long way. The presence of some —100 mesh fines will greatly increase the strength of the block leaving the block machine and the plastic and dry strength of the block. They will also increase the fired strength. The presence of fines will make the adjustment of water much less critical. They will also give a smoother texture to the block. Excessive fines will cause balling up of the mixture and make it impossible to form block on concrete block machines. The right amount of fines depends on the size and type of binder clay and the size distribution of the aggregate and the type of texture desired. In general, the amount will be between 8 per cent and 16 per cent.

The coarse portion of aggregate has a reverse effect to the fines. Sample 1A used —¼ inch aggregate while 1B used —⅛ inch aggregate. This change caused 1A to have less than 1/7 the fired strength and 1/5 of the dry strength of 1B. Reruns were made of I-A and I-B in which the water was increased to an optimum quantity for both compositions rather than maintaining the water quantity constant. This procedure increased the strength of both compositions and reduced the difference between them.

Sample 1A was difficult to mold and had a very coarse and unattractive texture as shown in Figure 2. The moldability and surface texture continued to improve with successive elimination of first the +8 mesh followed by the +14 and +20 mesh material. Satisfactory block could be made from any of these mixtures, but the —14 mesh aggregate is favored because of the pleasing appearance it develops combined with excellence in forming and finished product properties.

Mixing Water

Water is a major constituent in the block batch. Many times excellent appearing block have been observed issuing from a block machine only to have these block to appear weak and crumbly after firing. Insufficient water caused the disappointment. Concrete block producers have been trained to use the minimum water that will form the concrete into a block. A concrete block that forms nicely at the machine will

make a good finished unit. This is not true for clay block. The plasticity of the clay mix will cause it to form nicely at insufficient water. In contrast to concrete, clay block becomes stronger the larger the quantity of mixing water. This is illustrated by the results of Table II. The only change in batch composition of the reported compositions was in the quantity of mixing water which was varied from 20½% to 30½% in increments of two (2) per cent. The poor molding qualities of composition 2E with 20.5% water prevented obtaining specimens for further tests. The disappointments of many block attempts is explained by composition 2-D (22.5% water) which had a fired strength of 323 p.s.i. Increasing the water to 24.1% increased the strength to 700 p.s.i. while 26.5% water gave a fired strength of 1950 p.s.i. A little water can add a lot of strength.

No Further Improvement

Larger amounts of water gave no further improvement and 30.5 per cent water caused the block to slump on ejection from the mold. It was also noticed that the permeability decreased as the water increased. Water will pass very rapidly through the block walls or through the block made with insufficient water even though their strength is good and their absorption low.

It is interesting that the shrinkage decreased with increasing amounts of water. This is because the water actually facilitated packing in the mold, thus, the bulk density increased from 65 p.c.f. to 79 p.c.f. as the water changed from 22.5 to 26.5%. The water that gives the densest packing is desirable from the standpoint of strength, however, strength may be sacrificed for reductions in bulk density or for certain qualities of texture. Reductions in bulk density may be achieved by incorporation of some type of lightweight aggregate in the mixture, but another way of achieving lightweight is to produce pore spaces in the block by purposely avoiding complete packing.

Less Than Optimum Water

This can be accomplished by using less than optimum water or by particle sizing the aggregate in such a manner as to produce voids between the particles. Composition 2D had a granular texture and it appeared that the spaces between the coarser particles were only one-half filled. This is shown in Figures 4 & 5. With increasing water the pore spaces became filled and the surface of the block had a water struck or slick appearance. The bulk density increased approximately 3 pounds per block on the change and the surface texture changed as shown in Figure 4.

Water merits its classification as a major constituent of block mixtures. It exercises a dominant influence over strength and surface texture and has an important influence on bulk density. Close control of water is a secret of successful block production.

The staff of Brick & Clay Record extends to its readers best wishes for Christmas and the New Year

EHRSAM for Engineered Materials Handling

DRACON®
The Original

Now Equipped With ZYTEL-101 Flights

Originators of Dracon conveying, Ehrsam engineering has now produced new flights made from a nylon: duPont ZYTEL-101 for more efficient conveying and greater wearability.

For a single Dracon conveyor, or a complete material handling system, engineered details produce the reliability associated with Ehrsam equipment.

Whatever your material handling problem, call Ehrsam for an engineered solution backed by equipment designed for your process.

EHRSAM

The J. B. EHRSAM & SONS MFG. COMPANY
Enterprise, Kansas

Offices: Kansas City, Kan. / Denver, Colo. / Chicago, Ill. / Fort Worth, Tex. San Francisco, Calif. / Phoenix, Ariz. / Hastings, Neb. / Albuquerque, N. M.

Representatives: Thomer Equipment Co., Minneapolis, Minnesota
Frank Vtylacil, Chicago, Illinois
B. R. Good, Houston, Texas

Circle Service No. 29

SCPI Told:

Research or Perish!

- ► **Stress industry cooperation at convention**
- ► **Time to take initiative in promotion**
- ► **Cite threat of competitive products**
- ► **Frisk elected president of Institute**

The theme of industry research dominated the 1961 annual convention of the Structural Clay Products Institute, attended by 900 brick, structural tile and architectural terra cotta manufacturers.

One of the major talks was by Dr. Clifford F. Rassweiler, vice-president for research and development for the Johns-Manville Corp. As head of research activities for Johns-Manville for the past 20 years, he has directed an expanded research program in the post-World War II period which resulted in the world's largest research center devoted to building materials and insulation and allied products.

Fred L. Steinhoff (right), editorial director of Brick & Clay Record, and William H. Scheick (center), executive director of the American Institute of Architects, visit with SCPI Board Chairman Douglas Whitlock during a break in the business sessions.

Dr. Clifford F. Rassweiler (center), vice president for research & development for the Johns-Manville Corp., visits with industry officials just before addressing the luncheon meeting. Talking with Dr. Rassweiler are (left to right): SCPI Board Chairman Douglass Whitlock, Engineering & Technology Director Harry C. Plummer, Dr. Rassweiler, SCPRF Director Robert Taylor and SCPI President A. C. Frisk.

Frisk Heads SCPI

A meeting of the SCPI board of directors was held during the convention. A. C. Frisk, president of the Goodwin Companies, Des Moines, Iowa, was elected president of SCPI. Frisk served last year as chairman of the Structural Clay Products Research Foundation, research arm of the industry. The newly elected vice president is William S. Sells, president of General Shale Products Corp., Johnson City, Tenn. George Gammie, president of Illinois Brick Co., Chicago, was reelected treasurer. Joseph J. Cermak of the Washington, D.C. staff of SCPI was reelected secretary.

Elected to the board of management of the Structural Clay Products Research Foundation were: Wm. Temple, Denver Brick & Pipe Co., chairman; Donald Renkert, Metropolitan Brick Co., vice-chairman; Richard Bickerstaff, Bickerstaff Clay Products, treasurer, and Harry Plummer, Structural Clay Products Institute, secretary.

Paul Belden, Jr., president of Belden Brick Co., and past president of SCPI, opened up the formal meeting by pointing out research projects that competitors to the clay products industry are performing. He sounded a warning to the industry and stated that research is necessary for the survival of all clay products manufacturers.

A. C. Frisk, new president of SCPI, stated that research may be considered business insurance to avoid interruption of business. Through research the industry has regained stature with architects all over the country, but to retain this stature the clay products industry will need new weapons to fight the competitive products in the building field being introduced almost daily. To obtain these new weapons, the entire

industry must support many research programs.

Robert Taylor, director of the Structural Clay Products Research Foundation, pointed out the purposes of research. Research is used not only to create new products and processes to keep the plants busy today, but research is also necessary to provide for future growth of the clay products industry. Taylor reviewed the products developed at the SCPRF labs in Geneva. He mentioned the latest developments in the high bond mortar, the large lightweight units, the SCR masonry process and the SCR brick, among others. He stressed the need for industry cooperation to support research fairly.

Union Cooperation

John J. Murphy, president of the Bricklayers, Masons & Plasters International Union, expressed his gratitude to the clay products industry for the research program and the products which research developed. Murphy also stressed the need for cooperation between the BMPIU and the clay products manufacturers as a requisite to success.

Murphy sounded a warning to the clay products industry by reminding them that at one time the union promoted the use of SCR brick, and when it was accepted they found out no manufacturers were making it and they couldn't get an SCR brick to place in the wall. He expressed his willingness to cooperate in any sort of promotion which the clay products industry would care to take on. It is known that masonry can be placed in the wall cheaper than any type of metal skin and for this reason the clay products industry, if it acts, has a brilliant future ahead of it.

William H. Scheick, executive director of the American Institute of Architects, explained to the clay products manufacturers what the architect wants from research. With new construction to exceed a trillion dollars in the next decade, other industries, through technical developments, will compete with clay products. By giving the architect what he wants, the clay products industry will be assured of getting its share of this construction market. He said it was time for the brick people to get off the defensive and get into the architect's office with new products and information about these products.

First of all, the architect wants consistent performance from any sort of building material he specifies on a job. The architect's reputation is tied in with the product that he specifies, and the architect must know how the material will perform. Secondly, the architect wants straight talk from the building material supplier as to the cost of the building material, be it initial cost or maintenance cost.

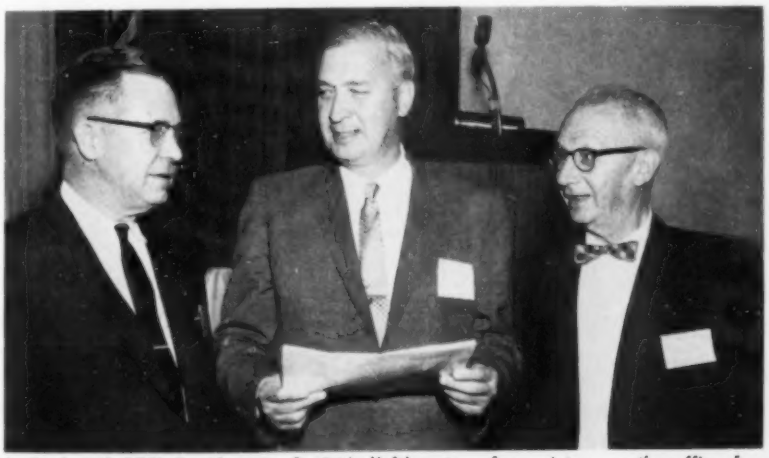
Thirdly, the architect looks for producer responsibility. That is, he expects a producer of building materials to tell the architect whether or not his product is good for one use, and not good for another. An architect is usually suspicious of a supplier who makes a blanket statement saying his product is good for over-all use. Fourth, the architect looks for a choice of building materials—a variety of color, texture, quality and cost.

Fifth, the architect looks for usefulness of the product in design. He is particularly interested in modular measure. The product should be chemically adapted to the use for which it is intended. There should be integration of small units into major components, such as panels, etc., and the material must also look natural at the same time.

Sixth, the architect is looking for the supplier of building material to develop components in subassemblies, these subassemblies even possibly being made up of several building materials. Scheick stressed the fact that the clay products industry must accelerate its research activities and the only way to compete with large powerful companies is through a unified effort of the entire industry. He also emphasized the importance of keeping the architect informed of all technical information available on any particular building material.

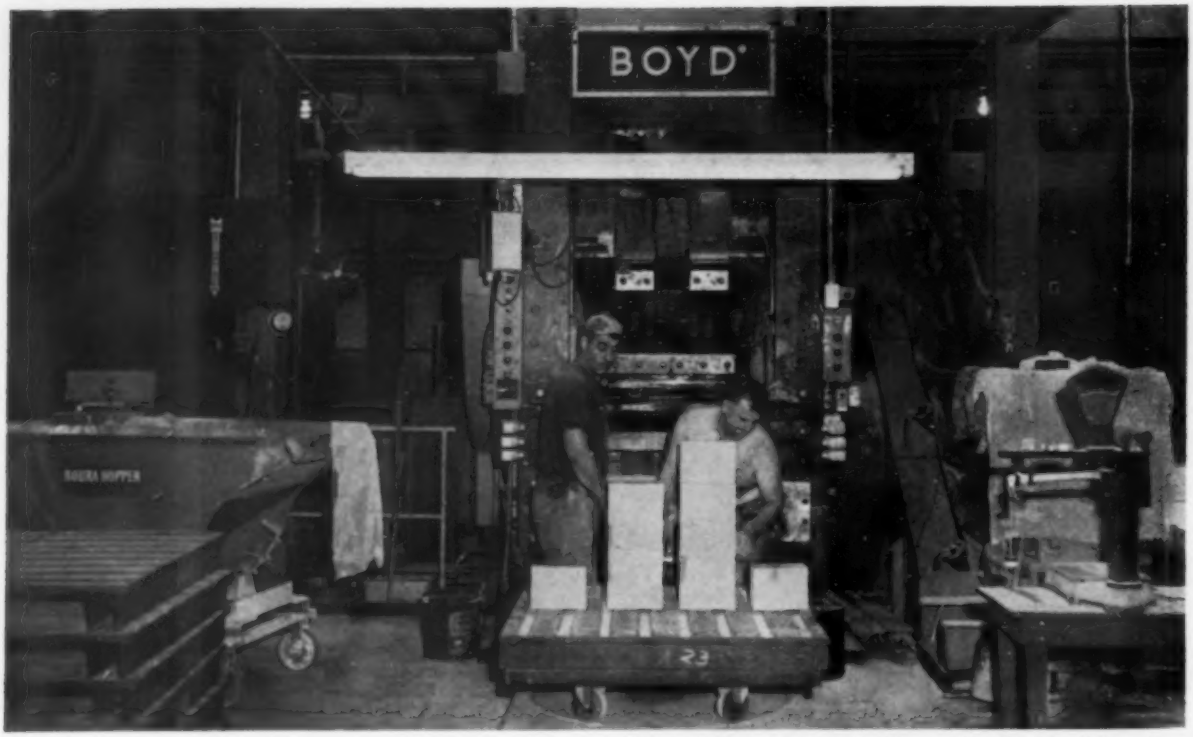
John H. Stewart, general manager and treasurer of Stark Ceramics, Inc., Canton, Ohio, reviewed the Mapleton process of which Stark Ceramics is a part. The SCPRF aggregate furnace is presently under construction and a lightweight block will be

(*Continued on page* 66)



Newly-elected SCPI President A. C. Frisk (left) gets a few pointers on the office from immediate Past President Paul B. Belden, Jr. (center) and re-elected Secretary J. J. Cermak.

Outside the main meeting room are seen: Len Cummings, Chicago Copper & Chemical Co., Harry Foster, Broad River Brick Co., Robert Poole, Chisholm, Boyd & White, Joe Stringer, BRICK & CLAY RECORD, and Claude Wiseman, West Virginia Brick Co.



The Boyd Press is equipped with a quality indicator (shown here mounted on the left of the machine) which determines whether the formed brick is of proper size and density.

Materials Handling Stressed at

North American's New Basic Plant

New basic brick operations side by side with silica brick plant in Pennsylvania. The two operations located in ideal market area provide company with flexibility and excellent customer service facilities. Elaborate raw material control and quality control featured to provide top quality product.

When North American Refractories Co., Cleveland, Ohio, started their new basic plant at Womelsdorf, Pa., the first part of this year, it was the culmination of a great deal of preliminary planning by the company's agressive staff. With the firm belief that the basic brick industry faced a bright future, the staff of the company investigated all possible sites and arrived at the decision that the best place to put the new operations would be at the company's already existing location in Womelsdorf, which was situated in the center of a good and growing market. This, along with the fact that the Womelsdorf plant was already producing silica refractories, would give the company excellent customer service facilities.

So with the help of Dwight B. Hendryx & Associates, designers of the plant, ground was broken for the new operation in 1960 and the first basic brick was shipped from the plant less than a year later.

Two Basic Raw Materials

Two basic raw materials are used at the Womelsdorf plant, dense, highest purity seawater, periclase and chrome ore. All the chrome ore is shipped by boat from the Philippine Islands into Philadelphia, approximately 55 miles south of the plant.

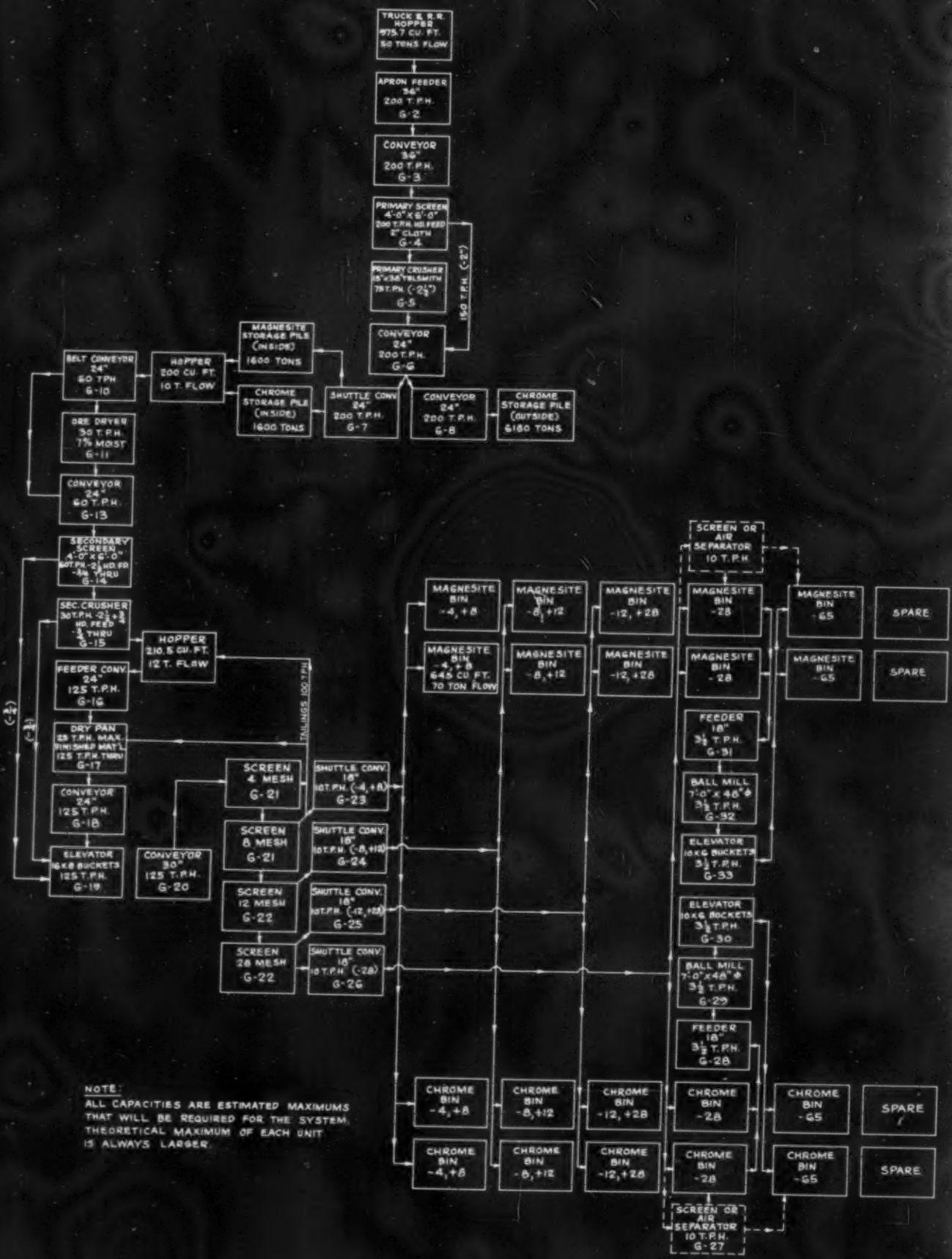
It is unloaded from the Philadelphia docks into rail cars and shipped by rail to the plant site. The chrome ore is then immediately crushed before being sent to one of two crushed storage areas, one located in a covered building and the other located outside the main building.

The periclase is also received by rail from the seawater facilities of the Michigan Chemical Co., located at Port St. Joe, Fla. The periclase is stockpiled in a covered storage area.

The primary crushing circuit for the chrome ore is designed to handle 200 tons of material per hour. The chrome ore is dumped into a track hopper and fed by an apron feeder to a conveyor which takes the ma-

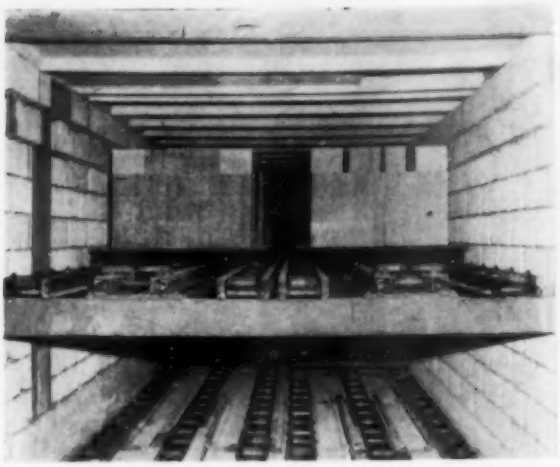
(*Turn to page* 52)

Opposite, flow chart of raw materials handling and preparation equipment.


TRUCK & R.R. HOPPER 975.7 CU. FT. 50 TONS FLOW
APRON FEEDER 36" 200 T.P.H. G-2
CONVEYOR 36" 200 T.P.H. G-3
PRIMARY SCREEN 4'-0"X6'-0" 200 T.P.H. HD FEED 2" CLOTH G-4
PRIMARY CRUSHER 15"X36" TELSMITH 75T.P.H. (-2½") G-5
150 T.P.H. (-2")
CONVEYOR 24" 200 T.P.H. G-6
MAGNESITE STORAGE PILE (INSIDE) 1600 TONS
CHROME STORAGE PILE (INSIDE) 1600 TONS
HOPPER 200 CU. FT. 10 T. FLOW
BELT CONVEYOR 24" 60 TPH G-10
SHUTTLE CONV 24" 200 T.P.H. G-7
CONVEYOR 24" 200 T.P.H. G-8
CHROME STORAGE PILE (OUTSIDE) 6180 TONS
ORE DRYER 30 T.P.H. 7% MOIST G-11
CONVEYOR 24" 60 T.P.H. G-13
SECONDARY SCREEN 4'-0"X6'-0" 80T.P.H. -2½ HD.FD -⅜ THRU G-14
SEC. CRUSHER 30T.P.H. -2½"+⅜" HD. FEED -⅜ THRU G-15
HOPPER 210.5 CU. FT. 12 T. FLOW
FEEDER CONV 24" 125 T.P.H. G-16
TAILINGS 100 T.P.H.
DRY PAN 25 T.P.H. MAX. FINISHED MAT'L. 125 T.P.H. THRU G-17
CONVEYOR 24" 125 T.P.H. G-18
ELEVATOR 16X8 BUCKETS 125 T.P.H. G-19
CONVEYOR 30" 125 T.P.H. G-20
SCREEN 4 MESH G-21
SCREEN 8 MESH G-21
SCREEN 12 MESH G-22
SCREEN 28 MESH G-22
SHUTTLE CONV. 18" 100 T.P.H. (-4,+8) G-23
SHUTTLE CONV. 18" 100 T.P.H. (-8,+12) G-24
SHUTTLE CONV. 18" 100 T.P.H. (-12,+28) G-25
SHUTTLE CONV. 18" 100 T.P.H. (-28) G-26
SCREEN OR AIR SEPARATOR 10 T.P.H.
MAGNESITE BIN -4,+8
MAGNESITE BIN -4,+8 645 CU FT. 70 TON FLOW
MAGNESITE BIN -8,+12
MAGNESITE BIN -12,+28
MAGNESITE BIN -28
MAGNESITE BIN -65
SPARE
FEEDER 18" 3½ T.P.H. G-31
BALL MILL 7'-0"X 48"Ø 3½ T.P.H. G-32
ELEVATOR 10X6 BUCKETS 3½ T.P.H. G-33
ELEVATOR 10X6 BUCKETS 3½ T.P.H. G-30
BALL MILL 7'-0"X48"Ø 3½ T.P.H. G-29
FEEDER 18" 3½ T.P.H. G-28
CHROME BIN -4,+8
CHROME BIN -8,+12
CHROME BIN -12,+28
CHROME BIN -28
CHROME BIN -65
SPARE
SCREEN OR AIR SEPARATOR 10 T.P.H. G-27

NOTE:
ALL CAPACITIES ARE ESTIMATED MAXIMUMS THAT WILL BE REQUIRED FOR THE SYSTEM. THEORETICAL MAXIMUM OF EACH UNIT IS ALWAYS LARGER.

Semiautomatic batching is done by weighing the batches with this Detecto weighing system.



Brick are palletized at the press and sent through this roller dryer which is 65-feet long.

New Basic Plant (*Con.*)

terial to a Tyler "Ty-Rock" screen, where the fines are removed. The 4 ft. x 6 ft. screen is equipped with a 2 inch cloth, so that all the material less than 2 inches in diameter is separated and conveyed immediately to storage. The oversize from the screens is fed to 15″ x 38″ Telsmith primary jaw crusher before being sent to the storage areas. A conveyor at the discharge of this primary crusher feeds the crushed material to either of two other conveyors, one leading to the outside chrome storage pile, or to a shuttle conveyor located inside the crushing building which deposits the material uniformly over the inside storage pile, capable of holding 1600 tons of material.

Use Front-End Loader

A Michigan front-end loader is used to feed both the periclase and chrome ore into the secondary grinding circuits. Appropriate material is fed by a loader into a 200 cubic foot hopper under which is located a 24″ belt feeder. Chrome ore is fed into an ore dryer, which was specially designed for this installation by Hendryx and North American engineers. The chrome ore is reduced to zero percent moisture by this unusual dryer, which consists of a series of two apron conveyors, one on top of the other, running in opposite directions through a heated tunnel. The tunnel is kept at a constant temperature and the material from the top conveyor is discharged into the lower conveyor at one end of the tunnel and the flow reversed. By the time the material reaches the opposite end of the dryer, which is the same end that it was charged, all the moisture has been removed. This dryer is capable of taking 30 tons of material per hour, from 7% moisture down to absolutely dry. It is gas fired and approximately 36 feet long.

Another 24″ conveyor then conveys the dry chrome ore, or periclase, whichever is being run through the circuit, to a 4′ x 6′ Tyler Niagara screen where the minus ¾″ material is removed. At this location it is possible to split the feed, depending on the type of material being run through the circuit. The ¾″ material is sent by a bucket elevator to the screens, while the coarse material can be sent to the same set of screens or to a secondary crusher, or to a dry pan for still further reduction. Or, if desired, the entire load, complete with fines, can be sent to either the screens or the pan. Up to this stage the entire grinding process is electrically interlocked so that should one piece of equipment fail the entire grinding operation will be shut down.

The secondary crusher is a Telsmith "Gyrosphere" which usually takes the feed from −2″ +¾″ in size. Material from this secondary crusher is sent to a hopper under which is located a 24″ belt feeder feeding the Chambers Bros. Co. dry pan. From the dry pan, which finish grinds 25 tons of material per hour, the Chain Belt bucket elevator lifts the material to the conveyor feeding the screens.

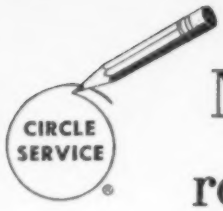
These screens consist of two batteries each of four Star Foundry screens. At this operation four grain size separations are made and conveyed by shuttle conveyor to one of 48 individual bins set aside for the particular size fraction of each type of material. For further reduction of the periclase, material is taken from one of these bins and fed by an 18″ belt conveyor to a 4′ long by 7′ diameter Hardinge ball mill. It is then returned to another bin set aside for holding the minus 65 mesh material. The same process is carried out for fine grinding the chrome ore.

Semiautomatic Batching

Semiautomatic batching has been designed into the plant by Hendryx and North American engineers. A Star Foundry batch car with a Detecto Weighing system collects the batch and delivers it to a Simpson Mixer where the various gradations of the two materials are mixed thoroughly. The binders and additives are also added to the batch in the batch car before it is deposited in the mixer. A conveyor delivers material to the press hopper located immediately above the Boyd press.

A quality indicator on the Boyd press automatically determines whether the brick is undersize, oversize, or of the proper size. Indications are by lights on the indicator: one light flashing when the brick is of proper size, another light flash-

(*Continued on page* 56)



Now you can receive FREE information on:

- Advertised Goods
- New Products
- New Literature

HOW TO USE:

Simply circle the number corresponding to the advertisement or product number on the card. Mail the card and we will do the rest. You may circle as many numbers on one card as you wish.

Use this valuable service to obtain complete information about the many products available to you. Send us one card now and save the second card for later use.

Brick & Clay Record
P.O. Box 3382
Merchandise Mart Sta.
Chicago 54. Illinois

1	16	31	46	61	76	91	106	121	136	151	166	181	196	211
2	17	32	47	62	77	92	107	122	137	152	167	182	197	212
3	18	33	48	63	78	93	108	123	138	153	168	183	198	213
4	19	34	49	64	79	94	109	124	139	154	169	184	199	214
5	20	35	50	65	80	95	110	125	140	155	170	185	200	215
6	21	36	51	66	81	96	111	126	141	156	171	186	201	216
7	22	37	52	67	82	97	112	127	142	157	172	187	202	217
8	23	38	53	68	83	98	113	128	143	158	173	188	203	218
9	24	39	54	69	84	99	114	129	144	159	174	189	204	219
10	25	40	55	70	85	100	115	130	145	160	175	190	205	220
11	26	41	56	71	86	101	116	131	146	161	176	191	206	221
12	27	42	57	72	87	102	117	132	147	162	177	192	207	222
13	28	43	58	73	88	103	118	133	148	163	178	193	208	223
14	29	44	59	74	89	104	119	134	149	164	179	194	209	224
15	30	45	60	75	90	105	120	135	150	165	180	195	210	225

NAME _____ TITLE _____

COMPANY _____

STREET _____

CITY _____ ZONE ___ STATE _____

B&CR-12-61 This card void after February 28, 1962

First Class
Permit No. 183
Chicago, Ill.

BUSINESS REPLY MAIL
No Postage Stamp Necessary If Mailed in the United States

POSTAGE WILL BE PAID BY-

Brick & Clay Record
P.O. Box 3382
Merchandise Mart Sta.
Chicago 54, Illinois

First Class
Permit No. 183
Chicago, Ill.

BUSINESS REPLY MAIL
No Postage Stamp Necessary If Mailed In the United States

POSTAGE WILL BE PAID BY-

Brick & Clay Record
P.O. Box 3382
Merchandise Mart Sta.
Chicago 54, Illinois

1	16	31	46	61	76	91	106	121	136	151	166	181	196	211
2	17	32	47	62	77	92	107	122	137	152	167	182	197	212
3	18	33	48	63	78	93	108	123	138	153	168	183	198	213
4	19	34	49	64	79	94	109	124	139	154	169	184	199	214
5	20	35	50	65	80	95	110	125	140	155	170	185	200	215
6	21	36	51	66	81	96	111	126	141	156	171	186	201	216
7	22	37	52	67	82	97	112	127	142	157	172	187	202	217
8	23	38	53	68	83	98	113	128	143	158	173	188	203	218
9	24	39	54	69	84	99	114	129	144	159	174	189	204	219
10	25	40	55	70	85	100	115	130	145	160	175	190	205	220
11	26	41	56	71	86	101	116	131	146	161	176	191	206	221
12	27	42	57	72	87	102	117	132	147	162	177	192	207	222
13	28	43	58	73	88	103	118	133	148	163	178	193	208	223
14	29	44	59	74	89	104	119	134	149	164	179	194	209	224
15	30	45	60	75	90	105	120	135	150	165	180	195	210	225

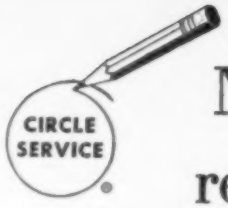
NAME _____ TITLE _____

COMPANY _____

STREET _____

CITY _____ ZONE ___ STATE _____

B&CR-12-61 This card void after February 28, 1962



Now you can receive FREE information on:

- Advertised Goods
- New Products
- New Literature

HOW TO USE:

Simply circle the number corresponding to the advertisement or product number on the card. Mail the card and we will do the rest. You may circle as many numbers on one card as you wish.

Use this valuable service to obtain complete information about the many products available to you. Send us one card now and save the second card for later use.

Brick & Clay Record
P.O. Box 3382
Merchandise Mart Sta.
Chicago 54, Illinois

Hub Hill Speaks

How Acme Plans Ahead

Q. *Explain your objectives in securing a president for Acme outside of the industry?*

A. The selection of Mr. Dee. O. Tomlin for the president's job in Acme was the result of careful study and determination that a company the size of Acme calls for general administrative and executive ability to a much greater extent than demanding technical knowledge of the industry itself. Mr. Tomlin's well rounded background, education and experience, along with his present age, created in our minds the thought that our objective in desiring to secure the best available man to qualify for these specifications would certainly be met by securing his services, especially knowing he would be backed by good technical men already in or soon to be brought into the Acme organization.

Q. *Does this tie up with your estimate of the near future building activity?*

A. Our objective was to secure a good man who would be with us over a long period of time and was not tied up with any estimate of the near future building activity.

Q. *Does this mean Acme will launch upon a big capital expenditure? Remodeling? Expanding by building? By acquisition?*

A. During 1960-'61, Acme has built a new plant at Malvern, Ark., and has bought the Fraser Brick & Tile Co., Seguin, Texas, at a total cost approximating $2,000,000. You can see it has been making sizable capital expenditures just recently. In addition, a continuing program of replacement, remodeling and modernization is being carried on in the various plants.

The new Malvern plant is an example of expansion by building while the Fraser plant represents expansion by acquisition. Furthermore, the capacity of some of our plants has been increased by improved equipment and techniques.

Plans for additional building programs are in various stages at present, some of which are likely to be implemented within the near future, dependent on economic conditions during the next several months.

Q. *Is such a modernization program overdue for Acme?*

A. Acme, like some other members of the industry, has some plants in which a modernization program is overdue, but it also has facilities which are quite up-to-date and are as modern as any in the industry. Modernization has not been done in some cases because of the clay reserve situation at the plants in question.

Hub Hill, chairman of the board, Acme Brick Co., Fort Worth.

Q. *Does this mean you will also launch the manufacture of products not now made by Acme? Not now made by the entire industry?*

A. Acme is always on the lookout for new products as attested by the continuing research program of its Denton, Texas, research laboratory. New products are being studied at this time, some of which will probably be perfected and put on the market.

Q. *What about promotion and selling, are you looking into that phase?*

A. This year Acme is engaged in the largest advertising and promotional program in its history. Its sales organization is even now being reorganized for more effective effort. Responsibilities are being reassigned so as to provide an even harder hitting sales force than has existed in the past.

Q. *What is your outlook for the clay products industry?*

A. We are extremely optimistic. All indications point to a strong economy and a great amount of building activity during the next decade. The products of our industry are the very best for the purposes for which they are intended, in addition to which new and better and more attractive clay products are being developed almost constantly.

New Basic Plant . . .

(*Continued from page 52*)

ing when the brick is oversize, and a third light flashing if the brick is undersize. By watching the lights, the press operator controls size on the brick accordingly.

From the press, brick are set on steel pallets and transferred into a roller dryer which is 65 feet long. From the dryer the brick are then repalletized for shipment or routed for steel plating or burning. Most of the orders received from the customer today are for unburned brick, but facilities are available to provide the customer with burned brick should he desire it.

Quality control is the watch word from the start of the process up to the final shipment of the order. For this purpose, a quality control laboratory has been set up as an integral part of the plant. Quality control starts with the chrome ore as received at the rail siding. Composite samples are taken from every car and checked for their chemistry, density and screen analysis. The same applies to the periclase. A complete screen analysis in the grinding plant is done at periodic intervals to make sure this process is functioning efficiently. The batch scale calibration is checked at frequent intervals and periodic checks of binder additions are made. Every half hour a check on the ball mill discharge is made and at one hour intervals the batch is checked for the proper screen analysis and moisture content.

Continuous Check at Press

In addition to the above methods, a continuous check is maintained at the press with particular emphasis placed on the weight and size of the formed brick. The dryer is constantly checked and controlled to maintain the proper humidity and temperature at all times throughout the dryer. Brick of each day's production are checked completely for all physical and thermal properties. And then to supplement the plant's testing facilities, complete tests are made at the company's Curwensville, Pa., Research Center.

A full line of basic refractories of highest quality is produced under the trade name of NARMAG in the following categories: magnesite, magnesite-chrome, chrome-magnesite, and chrome—both chemically bonded and burned in either plain, metal encased, or internally plated types.

The Womelsdorf plant is serviced by a major rail carrier, the Reading Co., which affords rapid delivery to any consuming point. Easy access to the Pennsylvania Turnpike and connecting systems assures speedy delivery of shipments by motor carrier.

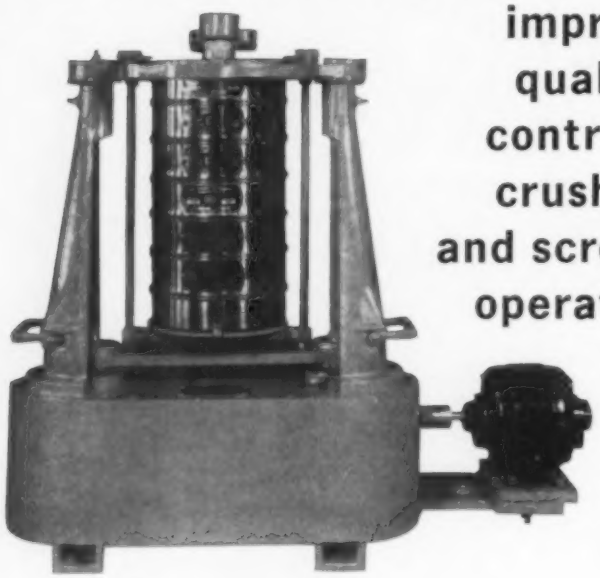
A. L. Parana is works manager of the entire operation which includes both the silica brick plant and the basic plant. He is assisted by J. B. Polson, superintendent of basic, and by D. J. Baker, superintendent of silica.

Expansion Completed

A two and a quarter million dollar expansion and modernization program at H. K. Porter Co. refractories division's Bessemer Works, Bessemer, Ala., has been completed.

A highlight of the expansion program is a completely new dry press installation that meets the requirements of all industries in the South.

TYLER TESTING SIEVES



improve quality control of crushing and screening operations

Tyler Testing Sieves are used worldwide as a standard method of classification of granular materials—particle measurement from less than two-thousandths of an inch up to two or more inches is possible. They improve quality control of your screening operations, permit standardization between different plants. Tyler Sieves can be used with Ro-Tap shaker (shown above), by portable, or by hand-operated shaker. *Write for new Handbook 53* describing testing equipment, and covering latest A.S.T.M. testing sieve specifications. The W. S. Tyler Company, 3615 Superior Avenue, Cleveland 14, Ohio.

TYLER

WOVEN WIRE SCREENS • SCREENING MACHINERY • TESTING SIEVE EQUIPMENT

Circle Service No. 30

The Role of Draft in Firing Periodic Kilns

By J. GEORGE SEANOR
Bonnot Co.

Much has been written about draft in kiln firing. Most discussions of draft indicate a superficial knowledge of kiln firing, but a complete misunderstanding of the deep problem of which draft is but a vague index, i.e., the volume of gas required.

Since brick are matured by combustion gases, or a mixture of combustion gases and air, i.e., kiln gases, their volume is of prime importance in the firing process.

A little fan may have as high a rating in "draft" (or however it is rated) as does a large fan, but the small fan will not have as much volumetric capacity as does the large fan.

A stack, or draft fan, may not perform volumetrically, at their expected capacities. If the flue leading to them, from the collecting flues under the floor is too small, it will handicap the stack or fan, by forming a "bottle-neck" or a fixed damper. If the collecting flues under the floor are too small, or if the floor openings do not have enough total area of opening, bottle-necks will be formed which will starve the stack or fan, volumetrically, and cut their capacity to do useful work. If the setting of ware is too tight inside the kiln, it may form a bottle-neck and starve the stack or fan unduly. Traditional kiln setting is too restrictive and is a bottle-neck. There are other restrictive influences which will be discussed in the following. The static pressure and velocity pressure provided by the stack or fan is only one phase of the "pressure" problem in a kiln. There are other vital factors which are largely ignored by tradition. Certain static pressures within the kiln may be improperly arranged and may work against the stack or fan—serving to damper them in effect.

Sometimes a draft reading is a vague index of gas volume, but it is generally mis-interpreted. Lovejoy says that a draft gauge has little value and little attention is paid to it.[1] Harrop[2] critized the draft gauge because it measures only flue resistance, or some other resistance, within the kiln system, and gives no information as to the volume and velocities of kiln gases.

A draft reading indicates the unused capacity of the fan or stack in front of which the reading is taken but gives no direct evidence as to the volume of gases passing into the stack or fan.

The late Prof. Binns (previously quoted verbatim) said, essentially, that we should think of draft as pressure. If we think in terms of absolute pressure and pressure-heads based on absolute pressure, the movement of gases through kilns becomes

---

[1]Lovejoy, Ellis "Fundamentals and Economics in the Clay Industries" Randall Publishing Co., Wellsville, N. Y. P 247

[2]Harrop, C. B. Ibid PP 223-241.

new markets! new profits!
with "hand dressed"
BRICK
by PITCHMASTER

Here is a machine that incorporates the skills of the craftsman with more production muscle than twenty men.

Reach NEW markets, NEW profits by offering a NEW brick with greater depth of beauty.

- Culled brick can be converted to premium priced material.
- Fifty lineal feet of "Hand-Dressed" brick per minute.
- Instant adjustment to material height and depth of pitch. No limitation on material length.
- All material is conveyed through machine in a continuous flow by belts and rollers. Machine maintenance is reduced to the absolute minimum.

NEW AND REVOLUTIONARY IN DESIGN! TESTED AND PROVEN

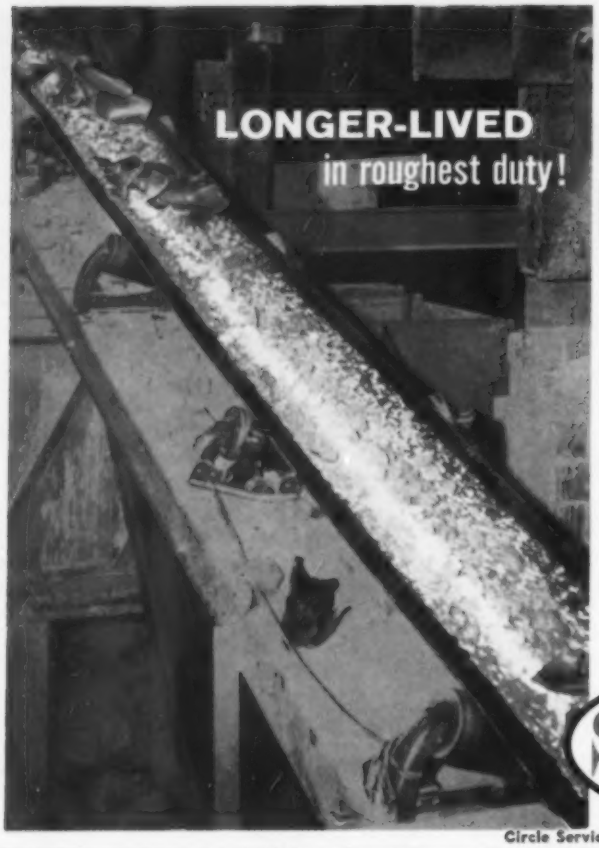
Names of satisfied users furnished on request

$4000.00
F.O.B. FRANKFORT, INDIANA

No other comparable machine in the field today will match the productivity and dollar profit that PITCHMASTER affords to make it a common sense investment.

E & R MFG. CO. INC.
FRANKFORT, INDIANA

Circle Service No. 39



A typical Scandura application—inclined conveyor handling raw clay and scrap.

Scandura

GOLD PVC LINE

BELTING

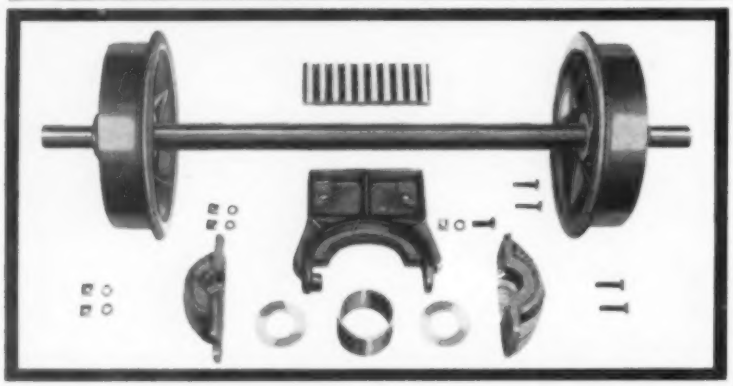
Scandura PVC — the *original* solid-woven polyvinyl coated belting — won its spurs in the heavy ceramics industry, with many installations in Ohio's brick, sewer pipe, ceramic tile and drain tile plants. Today, Scandura PVC Belting is first choice everywhere for drag conveyors, off-bearing conveyors, bucket elevator belts and transmission belts — offering unmatched strength and endurance. Write for the Scandura facts; also for full information on our Fentonia and Scandinavia solid-woven bituminous treated brands for inclined scrap return conveyors and measuring belts.

Manufactured by

Scandura INC.

North Tryon Street
at Keswick Avenue
(P. O. Box 949)
Charlotte 1, North Carolina

Circle Service No. 32



LENGTHEN DRYER, KILN AND TRANSFER CAR LIFE WITH CHASE REPLACEMENT PARTS

Give your old dryer cars, kiln cars and transfer cars a new lease on life with genuine Chase Repair Parts. Made to fit nearly all makes of cars and any track gauge, these replacements can help improve your profit picture by adding years of extra service to your present cars.

Check now for needed car repairs and place your order for early delivery. Every Chase Replacement Part is backed by more than sixty years of experience in the manufacture of equipment for brick makers.

Chase

WRITE FOR CATALOG OR SEND SPECIFICATIONS FOR PROMPT PRICE QUOTATION.

FOUNDRY & MANUFACTURING CO.

2350 Parsons Avenue • Columbus 7, Ohio

Builders of industrial cars, trucks and racks since 1897

Circle Service No. 33

REPAIR PARTS CHECK LIST

☐ **Chase Wheels and Axles** — Select the grade of gray iron wheels best suited to your regular car loads. Plain, chilled and high-strength gray iron can be supplied in single-flanged, double-flanged and flat-faced styles. High-carbon steel axles are available in three journal diameters.

☐ **Chase Flexible Bearings** — Dust-proof, oil-retaining bearing has flexible boxing to allow for irregularities in track or car frame, or bent axles, without extra friction. Renewable steel liner is easily replaced to give a complete new bearing surface at a very small cost. Available in three sizes for various load capacities. Other types of bearings and bearing parts can be furnished to your specifications.

☐ **Chase Steel Decks** — Special high-carbon, high-strength steel channel slats are arc-welded into split or two-piece, folding and cross-slatted styles.

☐ **Chase Deck Supports** — Easily convert single-deck dryer cars into double or triple deck styles by bolting on these sturdy steel uprights.

☐ **Chase Channel Slats** — High-carbon, high-strength steel slats can be supplied for any car or deck. Give extra-long service under heavy usage.

☐ **Angles, Gussets, Brackets, Other Repair Parts** — Available for any style dryer car.

☐ **Trackage** — Strong portable track, usually supplied in 15-foot sections with five cross-ties. Switches also available for any gauge track.

clearer. There is no confusing draft wobbling up and down from an atmospheric pressure that is constantly fluctuating.

The traditionalist who thinks in terms of draft measures his drafts from which he makes his inferences at some point in the kiln system which is below atmospheric pressure, where a draft gauge will register. He usually has a vague knowledge, if any, about conditions in those parts of his kiln that are above atmospheric pressure.

In thinking in terms of pressure-heads, one must also consider the cross-sectional open area of the flues, ducts, and slots between the brick in the setting, upon which the pressure head exerts its force. One must also think of the specific gravity of the air, and kiln gases. The specific gravity of kiln yard air, and kiln gases within the kiln, differs greatly according to the elevation of the plant.

A pressure head of .10″ (water pressure) will induce a velocity of 1270 feet per minute in dry air at 70° F. and a specific gravity corresponding to 1.0 (at an absolute pressure of 29.92″ of mercury)[3]. Air under these conditions is sea-level air, but most kilns are not located at sea-level.

This pressure-head of .10″, pressing on an orifice having an area of 1 sq. in. would move approximately 8.8 cubic feet of air through the orifice per minute (disregarding friction). If, instead of an orifice of 1 sq. in., the pressure-head was exerted on a long tube having 1 sq. in. of cross sectional area, the volume of air moved, per minute, would be less than the 8.8 cu. ft. due to the frictional resistance in the long tube.

Volume of Air Moved

If a flue, duct, or orifice is large, in proportion to the volume of air, or gas, to be moved through it, the velocity will be low, the required pressure-head will be low, and frictional resistance will be low.

Conversely if the flue, duct, or orifice is proportionately small relative to the volume of air, or gas, to be moved through it, the velocity must be high, the pressure-head will have to be high, and the frictional

[3]Ceramic Catalog, Seventh Edition, Industrial Publications, Chicago, 1934 and table on p. 287.

WHEN SCREENING DAMP, STICKY MATERIALS

it takes more than wire cloth heaters to eliminate blinding

IT TAKES THE SHARPER WHIP OF

SECO VIBRATING SCREENS

All the wire cloth heaters and ball tray attachments in the world will not give you accurate screening results if the screen itself isn't screening properly. SECO SCREENS' True Circular Action assures a positive throw and a sharp whip that lifts material free of the wire cloth so that the undersize stands a better chance of being driven through the wire cloth rather than being carried along with the oversize. Of course, SECO SCREENS come equipped with the best wire cloth heaters and/or ball tray attachments. The point is these attachments work better on a SECO to give you more through material, less rescreening and greater tonnages. Look into the big SECO line of more than 450 models today!

Send today for 4-bearing Catalog #205 or TWIN BEARING booklet TB-21

Screen Equipment Co., Inc.,

Buffalo 25, New York

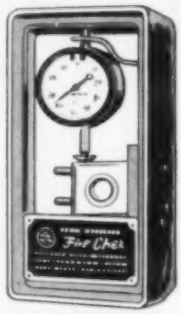
SECO PRODUCER PROVEN VIBRATING SCREENS

Circle Service No. 34

For Heat Measurement

Use the Bell
PYROMETRIC SYSTEM

CONE PLAQUES
. . . for rapid loading and setting of cones in kiln. Solid base and center break so plaque can be used for two or four cones.



BELL FIRE-CHEK GAUGE
gives quick, accurate measurement.

FIRE-CHEK KEYS
. . . here accurate heat measurement is simple. Center hole design permits easy draw trials.

CONES
. . . the true guide to the end point in firing and heat distribution in your kiln.

BELL RESEARCH INC.

REDUCE WASTE • SAVE DOLLARS
Send for prices today
Box 757 • E. Liverpool, Ohio

Circle Service No. 35

no more downtime to replace connectors...

HANCO FLUX POWER SCREEN HEATERS
transmit power through the air!

With the all new Flux Power by Hanco all mechanical connections between transformer and screen are eliminated. The 0 to 4000 ampere current is transmitted through the air by inserting a conductor through the eye of the transformer. This permits unrestricted vibration, maximum power transmission and true screen balance.

5 YEAR GUARANTEE

A DIVISION OF HANNON ELECTRIC CO.

★ Dust-tight, waterproof construction
★ Dual voltage, 220/440 volt
★ Use either plain or stainless cloth
★ Anti-magnetic steel side rails

write today for full details:

HANCO INTERNATIONAL
CANTON 7, OHIO, U. S. A. — CABLE HANCO

EUROPEAN SALES AND MFG.
HANCO INTERNATIONAL
5 WIBAUTSTRAAT • AMSTERDAM, HOLLAND

Circle Service No. 36

resistance will be high. On most kilns the passages through which the gases must move are too small. This statement does not except tunnel kilns.

Due to the low specific gravity, the frictional resistance on very hot air, or gas, is less than on cold air or gas.

If an orifice had an area of 1 sq. ft. instead of 1 sq. in. the pressure-head of .10″ of water pressure would move 1270 cu. ft. of standard sea-level air per minute; and if the orifice had an area of 5 sq. ft. the .10″ pressure-head would move 6650 cu. ft. of standard sea-level air through the orifice per minute.

Important in Performance

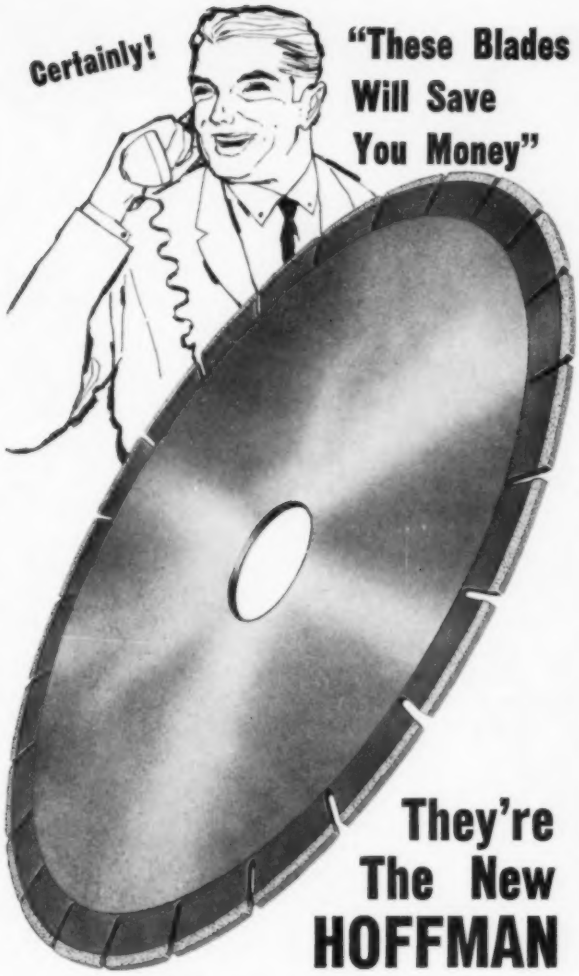
This explains why the cross sectional area of the kiln's ducts, floor openings, and flues; including the interstices between the brick, are so important in a kiln's performance. High draft fans, and cross-ventilating fans, are artifices to overcome cross sectional areas that are too small. These fans are intended to increase the pressure head on the kiln gases.

For a practical rule, if you wish to move twice as great a volume of gas through a specific duct, you must increase the pressure head four times. On the other hand you can move twice as great a volume of gas, if you double the area of the duct, without any increase of pressure head. It is more economical, in the long run to enlarge bottle-necks (places where the cross sectional areas are too small) than to try to compensate for the bottle-necks by using high fan pressure.

An incontrovertible law of physics is that air or gases move from one location, or position, to another, impelled by a pressure-head. Air or gas moves from a high pressure zone to a lower pressure zone.

A very slight pressure head will move vast volumes of air, or gas, from one position to another, if there is an unobstructed path through which the air or gas can move. If the atmospheric pressure in Georgia, in the spring, is just a few millibars lower than the atmospheric pressure in Western Canada, a cold wave moves down into Georgia and destroys the peach crop, A standard barometer, or absolute pressure of 29.92″ of mercury is 1013 millibars.

In the case of the frozen peach



Diamond Segmented
CIRCULAR SAW BLADES

They cut through practically every abrasive material known . . . frequently do the job in a fraction of the time required with ordinary equipment. Hoffman Segmented Blades are currently setting new production records in sawing hardest concrete, chrome, granite, silica brick, marble, Monofrax®, KX-99®, Zae®, Findley Clay® and many others. Fast, accurate sawing is producing new production techniques . . . holding processing costs to a minimum.

Hoffman Saws are available in 14 different cutting edge matrix bonds . . . each one produced to do a specific cutting job best. Accurate diamond impregnation plus special segment design assures fast cutting. Under correct power consumption and fluid control. Customer's material samples tested At No Charge to determine best Hoffman Saw for a particular job.

Write for Illustrated Literature and Prices—*FREE*. Ask for data on other Hoffman Diamond Products.

HOFFMAN BROS. DRILLING CO.

100 Cedar Street **Punxsutawney, Pa.**

Circle Service No. 37

Each of these electrically heated "UP" vibrating screens is connected to a 12-kva transformer.

ELECTRICALLY HEATED CLOTH PREVENTS BLINDING OF LINK-BELT "UP" VIBRATING SCREENS

Link-Belt "UP" vibrating screens always work at *full capacity!* Even the "stickiest" jobs can't dampen their efficiency. Electrically heated screen cloth combines with high-speed elliptical vibrating action to maintain high-volume, precise, blind-free sizing.

"UP" screen cloths are heated by a "series" arrangement. Few cables are needed and initial cost is low. The "series" method (originated by Link-Belt) provides extremely uniform heating with a very low current consumption. Other "UP" economy features include overall rugged construction and two-bearing design simplicity.

Available in open and enclosed types, single or double decks, in a wide range of sizes. For full details, ask your nearest Link-Belt office for Book 2777.

LINK-BELT

15,626

VIBRATING SCREENS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Warehouses, District Sales Offices and Stock Carrying Distributors in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs; Switzerland, Geneva. Representatives Throughout the World.

Circle Service No. 38

5 HOUR "SHIPPING GUARANTEE" ON PARTS

Within 5 hours after your order for normal-wearing replacement parts for Bonnot equipment reaches the Canton plant, the material is on its way to you. An important phase of "the new look at Bonnot" . . .

This "guarantee" is possible because of a greatly enlarged parts inventory, a modern inventory control system and expanded foundry operations that include continuous testing for "better metals for longer wear."

Along with "5 hour shipment," you'll get the multiple advantages of parts made by the original equipment manufacturer. Fast shipment means less downtime in your plant. Quick delivery from Bonnot means less parts inventory in your plant.

Next time you need replacements, test for yourself, the new "5 hour shipping guarantee on parts" and keep your production moving on profit-producing schedules.

BONNOT DIVISION
The C. L. Gougler Machine Company

The BONNOT Company
CANTON, OHIO
THE C. L. GOUGLER MACHINE COMPANY

Circle Service No. 31

buds in Georgia cubic miles of cold air are involved. In kiln firing cubic feet of kiln gases and combustion air are involved. However, the volume of kiln gases is much greater than is generally realized.

It is unfortunate that the traditionalist uses atmospheric pressure as a base when he thinks of kiln pressures. Atmospheric pressure, anywhere, is constantly changing, and never stays put on any kiln yard, or in any tunnel kiln building. At sea-level, atmospheric pressure frequently rises 3⅓% above the average or drops 3⅓% below the average.

When one uses atmospheric pressure as a base, one must be prepared to think of pressure as a plus pressure (above atmospheric pressure) and also as minus pressure (called draft) below atmospheric pressure. Since the base, or atmospheric pressure is constantly varying, this introduces confusion.

Draft Gages Used

Also, since most draft gauges generally indicate only minus pressure, they are used only at those places in the kiln system where below atmospheric pressures are generally found; and very little recognition is given to those places in the kiln where plus pressures normally exist.

Some kiln operators actually argue that there is not a positive pressure under the crown of a down draft kiln when it is under fire. They argue that if a positive pressure existed under the crown, because there is a minus pressure at the firebox, the kiln gases would flow down and out of the fireboxes because gases flow from the high pressure zone to the low pressure zone. They do not realize that it is the net pressure head within a kiln system, or furnace, that moves the gases through the system.[4]

Since, in a down draft kiln, under fire, the pressure head is lower between the crown and the flue underneath the floor, than it is between the crown and the firebox, the gases take the path of least resistance and flow down into the under-floor flue, instead of down and out of the fireboxes. The net pressure head moves them down through the kiln.

---

[4]Trinks, W. Industrial Furnaces Vol. 1, John Wiley & Sons, N. Y., 1934 P 363.

Brick & Clay Record

Annual Editorial Index – 1961

Brick & Clay Record is the magazine of brick, drain tile, structural tile, clay aggregate, terra cotta, roofing tile, refractories, clay pipe and abrasives and is devoted exclusively to these subjects. Its editorial content is balanced and provides the reader in the heavy clay products field with the most comprehensive and up-to-date information on the subject of particular interest to him—every month, throughout the year.

A

Abrasives:
- Cut Costs, Protect With Corrugated Packaging ..... May, 53
- Grinding Wheels Precision Made to Your Specs ..... June, 68

Additives:
- Clay Modifiers ..... Nov., 45
- Feeders Provide Uniform Blending of Raw Materials ..... Nov., 72
- Wollastonite Effective Additive For Structural Clay ..... Mar., 68

Aggregates:
- Demand Grows For Lightweight Aggregate ..... Apr., 73
- Expanded Clay Aggregate Meets Demands of South ..... Jan., 80
- See Big Gains For Lightweight Aggregate ..... Sept., 72
- Use these Aggregates in Making Clay Block ..... May, 61

Air Conveyor Speeds Stiff Mud Protection ..... Mar., 56

An Open Letter To The Industry ..... Apr., 71

AutoCLAYmation—Key To Industry Progress ..... Sept., 35

Automatic Weigh Batching Speeds Firebrick Production ..... July, 54

Automation:
- AutoCLAYmation—Key To Industry Progress ..... Sept., 35
- Automatic Weigh Batching Speeds Firebrick Production ..... July, 54
- Automation and Depreciation—Two "Musts" for Our Industry ..... Sept., 35

B

Baloney and Brick! Not a Sandwich But an Idea ..... June, 74

Basic Refractories ..... Jan., 70

Basic Refractories Moving Up ..... June, 63

Batching:
- Automatic Weigh Batching Speeds Firebrick Production ..... July, 54

Best Brick Packages To Stay Competitive ..... Mar., 66

Blending:
- Feeders Provide Uniform Blending of Raw Materials ..... Nov., 72

Block, Ceramic, How Mixing Affects Properties ..... Oct., 52

Brick Plant Uses Shuttle Kiln Profitably ..... Aug., 46

Bright Future Predicted For Basic Brick ..... Dec., 50

C

Calcining Cuts Density, Maintains Brick Strength ..... Feb., 46

Clay Block:
- Clay Block Comes of Age ..... Apr., 75
- Determine Firing Schedule of Ceramic Block ..... Nov., 60
- How Mixing Affects Properties of Ceramic Block ..... Oct., 52
- Is it "Clay Bonded Block" or "Ceramic Block?" ..... Aug., 38
- Making Clay Block on a Concrete Block Machine ..... Dec., 43
- Use These Aggregates In Making Clay Block ..... May, 51
- What Do Raw Materials Cost For Making Clay Block? ..... Sept., 66

Clay, How Do You Mine ..... Oct., 56

Clay Industry Favors Truck Shipping ..... Nov., 68

Clay Modifiers ..... Nov., 45

Clay Pipe:
- Challenge & Opportunity ..... May, 44
- Denver Brick & Pipe Co. ..... Oct., 54
- Discuss Coupling Materials Testing ..... Mar., 71
- Florida's First Clay Pipe Plant Produces 100 Tons Daily ..... July, 40
- Manufacturers See Bright Future For Clay Pipe ..... June, 80
- Pacific Clay Products Co. Mar., 62
- Plant-Designed Lifters Save Money ..... Oct., 54
- United States Concrete Pipe Co. ..... July, 40

Coatings:
- Sell More Clay Products With Ceramic Coatings ..... July, 47

Colmonoy Spray Gun Tips Last and Last ..... Jan., 82

Convert Obsolete Brick Plant to Lightweight Aggregate ..... June, 66

Cope With Depletion Allowance Problems ..... Jan., 90

Customer Service Spurs Growth of Rockford Brick & Tile ..... July, 44

Cut Costs, Protect With Corrugated Packaging ..... May, 53

D

Demand Grows For Lightweight Aggregate ..... Apr., 73

Depletion:
- Cope With Depletion Allowance Problems ..... Jan., 90
- Depletion Becomes Law ..... Oct., 42
- Depletion Bill Passes House ..... Sept., 64
- Southern Plant Operators Warned of Depletion Inequities ..... July, 56

Depreciation:
- Automation & Depreciation—Two "Musts" for our Industry ..... Sept., 35
- Editorial: Let's Write Them Off in Five Years ..... May, 30

Determine Firing Schedule of Ceramic Block ..... Nov., 60

Discuss Coupling Materials Testing ..... Mar., 71

Draft, Role of in Periodic Kilns ..... Dec., 57

E

ECSA:
- Demand Grows For Lightweight Aggregate ..... Apr., 73
- See Big Gains For Lightweight Aggregate ..... Sept., 72

Editorials:
- Big Chance For Local Promotion ..... June, 47
- Check Those Used Brick ..... Oct., 27
- Come To Clay Block Meeting ..... Feb., 17
- Here's What Research Has Done For You ..... Sept., 23
- Industry Girds For The Future ..... Mar., 41
- Is Your Price Right? ..... Dec., 29
- It's Up to You ..... Nov., 33
- Let's Take a Close Look at Our

Market ..... Oct., 44
Let's Write Them Off In Five Years ..... May, 30
Time IS Money In This Business ..... July, 29
Two Million Dollars For Promotion ..... Apr., 55
We Have Just Begun ..... Oct., 27
What Makes A Business Big? ..... Jan., 29
Wonderful World of Research, The ..... Aug., 25
Expanded Clay Aggregate Meets Demands of South ..... Jan., 80

F

Fast Fire Kilns, How to ..... Sept., 69
Feature Lightweight Clay At Meeting ..... Oct., 61
Feeders Provide Uniform Blending of Raw Materials ..... Nov., 72
Firebrick, How Insulating Affect Shuttle Kiln Performance Sept., 48
Fireclay Refractories ..... Jan., 69
Florida's First Clay Pipe Plant Produces 100 Tons Daily ..... July, 40

G

Gleason Clay Products Co. ..... May, 40
Glen-Gery Modernizes With Rebuilt Shale Plant ..... Nov., 64
Grinding Wheels Precision Made to Your Specs ..... June, 68

H

High Alumina Refractories ..... Jan., 72

I

Improve Firing of Heavy Clay Products ..... Mar., 77
Insulating Refractories:
- How IFB Affect Shuttle Kiln Performance ..... Aug., 48
- Insulating Refractories ..... Jan., 73
- Johns-Manville Insulating Firebrick are Different ..... May, 48

Interview With Hub Hill ..... Dec., 55
Invest $12 in South's First Basic Refractories Plant ..... Feb., 40

J

Johns-Manville Insulating Firebrick are Different ..... May, 48

K

Kilns:
- Brick Plant Uses Shuttle Kiln Profitably ..... Aug., 46
- How Insulating Firebrick Affect Shuttle Kiln Performance ..... Aug., 48
- How To Fast Fire Kilns ..... Sept., 69
- Improve Firing of Heavy Clay Products ..... Mar., 77
- Modernize at Low Cost With New Envelope Kiln ..... June, 64
- Solve Your Problems In Heating and Cooling ..... Aug., 35
- Static Pressure In Downdraft Kilns ..... Jan., 86

L

Leasing:
- Should You Buy a Truck—Or Lease One? ..... Feb., 54
- Should You Buy Your Equipment or Lease It? ..... July, 58

Lets Go Prospecting For Clay ..... June, 82
Lets Take a Close Look at Our Market ..... Oct., 44
Lift Trucks Run This Brick Plant ..... Jan., 84
Lightweight Aggregate:
- Convert Obsolete Brick Plant To Lightweight Aggregate June, 66
- Demand Grows For Lightweight Aggregate ..... Apr., 73
- Expanded Clay Aggregate Meets Demands of South ..... Jan., 80
- See Big Gains For Lightweight Aggregate ..... Sept., 72
- Use These Aggregates In Making Clay Block ..... May, 61

Lightweight Clay Featured at Meeting ..... Oct., 61
Low Cost, Flexibility, Quality Mark Nebraska Operation ..... Mar., 58

M

Making Clay Block On a Concrete Block Machine ..... Dec., 43
Manufacturers See Bright Future For Clay Pipe ..... June, 80
Meeting Hears How Foam Zirconia and Alumina are Made ..... Nov., 70
Meetings:
- Brick & Clay Record Clay Block Conference ..... Apr., 75
- ECSA: Midyear Meeting ..... Sept., 72
- ECSA: Annual Meeting ..... Apr., 73
- Mississippi-Louisiana Brick & Tile Manufacturers Ass'n. ..... July, 56
- NCPMI—Technical Meeting ..... Mar., 70
- Refractories Division—American Ceramic Society ..... Nov., 70
- SBTMA ..... July, 56
- SCPI—Annual Meeting ..... Dec., 48
- SCPI—Region 4 ..... Mar., 71
- SCPRF—Midyear Meeting Aug., 42
- TRI—Plant Operators Meeting ..... May, 46
- TRI—Spring Meeting ..... Aug., 41

Milling, Screening & Air Separation ..... Dec., 50
Mining:
- How Do You Mine Clay? ..... Oct., 56

Minute Money Makers ..... Apr., 80
Modernize at Low Cost With New Envelope Kiln ..... June, 64
Moffitt, Roy B.:
- Determine Firing Schedule of Ceramic Block ..... Nov., 60
- How Mixing Affects Properties of Ceramic Block ..... Oct., 52
- Is It "Clay Bonded Block" or "Ceramic Block?" ..... Aug., 38
- Let's Go Prospecting For Clay ..... June, 82
- What Do Raw Materials For Making Clay Block Cost? ..... Sept., 66

Mullite Refractories ..... Jan., 74

N

New Concept In Shipping Brick by Rail ..... Oct., 58

P

Pacific Clay Pioneers in Clay Pipe Progress ..... Mar., 62
Package 100 Brick Every 19 Seconds With New Machine ..... June, 76
Packaging:
- Best Brick Packages To Stay Competitive ..... Mar., 66
- Cut Costs, Protect With Corrugated Packaging ..... May, 53
- Package 100 Brick Every 19 Seconds With New Machine June, 76
- Two Men Package Entire Production of Plant ..... Feb., 48
- West Brothers Unload 18,150 Brick per Man per 6-hr. Day ..... Jan., 78

Pick the Right Refractory For the Job ..... Jan., 67
Pioneer Clay Products Manufacturer Expands Again ..... Dec., 40
Plant-Designed Lifters Save Money ..... Oct., 54
Plant Stories:
- Bay State Abrasives Co. ..... June, 68
- Best Brick Co. ..... Mar., 66
- Columbia Brick & Tile Co. June, 76
- Denver Brick & Pipe Co. ..... Oct., 54
- Gleason Clay Products Co. May, 40
- Glen-Gery Shale Brick Corp. ..... Nov., 64
- Hammond-Baton Rouge Brick Co. ..... June, 64
- Henderson Clay Products Co. ..... Nov., 72

Huber, J. M., Corp. ..... Oct., 56

Interstate Brick Co. .....Jan., 84
Jackson Ready-Mix Concrete Co. .....Jan., 80
Johns-Manville Corp. .....May, 48
Louisiana Lightweight Aggregate Co. .....June, 66
Marshall Brick Co. .....Oct., 50
Nebraska City Brick & Tile Co. .....Mar., 58
North American Refractories Co. .....Dec., 50
Pacific Clay Products Co. Mar., 62
Porter, H. K. Co. .....Feb., 40
Rio Brick Co. .....Aug., 46
Rockford Brick & Tile Co. July, 44
Stark Ceramics .....Dec., 40
United States Concrete Pipe Co. .....July, 40
West Brothers Brick Co. ..Jan., 78
Plastic and Castable Refractories .....Jan., 76
Promotion:
Baloney & Brick? Not a Sandwich But an Idea .....June, 74
Editorial: Big Chance For Local Promotion .....June, 47
Editorial: Two Million Dollars For Promotion .....Apr., 55
Prospecting:
Lets Go Prospecting For Clay .....June, 82

R

Refractories:
Basic Refractories .....Jan., 70
Basic Refractories Are Moving Up .....June, 63
Fireclay Refractories .....Jan., 69
High Alumina Refractories Jan., 72
How I.F.B. Affect Shuttle Kiln Performance .....Sept., 43
Insulated Refractories ....Jan., 73
Johns-Manville Insulating Firebrick are Different .....May, 48
Mullite Refractories .....Jan., 74
North American Refractories Co. .....Dec., 50
Plastics and Castables .....Jan., 76
Silica Refractories .....Jan., 71
Special Refractories .....Jan., 77
Research Shifts Into High Gear at SCPRF .....Aug., 42
Research Tops SCPI Agenda Oct., 46
Robinson, Gilbert C.:
Making Clay Block on a Concrete Block Machine .....Dec., 43
Use These Aggregates In Making Clay Block .....May, 51

S

SCPI:
Annual Meeting .....Dec., 48
Region 4 .....Mar., 71
Research Tops SCPI Agenda .....Oct., 46
SCPRF:
Research Shifts Into High Gear at SCPRF .....Aug., 42
Seanor, J. G.:
Draft, Role of in Periodic Kilns .....Dec., 57
Improve Firing of Heavy Clay Products .....Mar., 77
Static Pressure In Downdraft Kilns .....Jan., 86
Three Basic Steps in Firing Feb., 50
Second Clay Block Conference .....Apr., 75
See Big Increase In Use of Brick & Tile .....Mar., 71
See Gains For Industry in Last Half of '61 .....June, 60
Sell More Clay Products With Ceramic Coatings .....July, 47
Should You Buy a Truck or Lease One .....Feb., 54
Should You Buy Your Equipment—Or Lease It? .....July, 58
Silica Refractories .....Jan., 71
Solve Your Problems In Heating and Cooling .....Aug., 35
Southern Plant Operators Warned of Depletion Inequities .....July, 56
Special Refractories .....Jan., 77
Static Pressure In Downdraft Kilns .....Jan., 86
Support Your Dealers and They'll Produce For You .....Feb., 52

T

Three Basic Factors In Kiln Firing .....Feb., 50
TRI Discusses Employee Grievances .....May, 46
TRI Elects, Adds New Members .....Aug., 41
Two Men Package Entire Production of Plant .....Feb., 61
Tunnel Kiln Capacity Increases Through Recirculation ....Oct., 50

U

Use These Aggregates In Making Clay Block .....May, 51

W

What Do Raw Materials For Making Clay Block Cost? .....Sept., 66
Wollastonite Effective Additive For Structural Clay .....Mar., 68

ARE YOU INTERESTED IN SELLING YOUR DISCARDED EQUIPMENT OR IN PURCHASING SOME GOOD USED EQUIPMENT? ARE YOU LOOKING FOR A SALESMAN, PARTNER OR FOREMAN? DO YOU WANT A BETTER POSITION OR TO RELOCATE IN A DIFFERENT AREA?

Advertise in the classified columns of BRICK & CLAY RECORD..... For a very small cost, you can sell your discarded equipment by using the classified pages of BRICK & CLAY RECORD. Next time you want to buy or sell equipment, a plant or a site, require additional personnel, or want a better position, use the classified columns!

BRICK & CLAY RECORD

5 South Wabash Avenue **Chicago 3, Illinois**

SCPI Meeting . . .

(*Continued from page* 49)

made at Stark Ceramics using present manufacturing facilities. Stewart also described the Precision System of construction (which BRICK & CLAY RECORD will describe in a later issue) where 8 x 16 blocks are locked into place by the use of grout. This system of construction is used in eight to 14-foot wall height.

Dr. Rassweiler pointed out in his luncheon talk that research was not a desirability but an inevitability in the industry for the following reasons. The rapid growth and expanding economy of the country will provide a continued accelerated building program in the next decade. The beginning of the 60's saw the end of the growth period where the lack of homes offered a building boom for the contractor. This situation should recur sometime in the 1970's.

He went on to say that the public will accept new things if offered by a responsible party; this has been evidenced by past experience. Experience has also shown that new products can be created and the industry is capable of absorbing any sort of changes in techniques, from marketing to manufacturing.

Rassweiler pointed out there are two big problems that have to be overcome before any research program can be successful. One is the high initial cost and the fact that it has to be paid for. The money must come from somewhere, probably from the selling price of the unit. He pointed out that 2% of the cost of anything should go back into a research project for use in developing and improving products. It is also very important to find people who have talent to conduct research.

Rassweiler declared that in 1930 only $110 million was being spent in research compared to the $5½ billion which was spent in 1958. The fact that there is a need for research projects is evidenced by this huge growth. Rassweiler emphasized that if changes in products and development of new products do not come from within the industry they will come from an outside source, possibly cutting off some of the clay products manufacturers' marketing possibilities.

Neill Boldrick, chairman of the Depletion Committee, reviewed the committee activities and accomplishments which resulted in the passing of H.R. 7057, the depletion allowance bill for the clay products industry. Boldrick went on to say that never before in legislative history has a bill received as much support from the manufacturer as this bill and he congratulated the industry on its joint effort. A new committee to further study depletion was announced and consists of George Gammie, Illinois Brick Co.; Kenneth Dunwody, Cherokee Brick & Tile Co.; Wm. Sells, General Shale Products Co., and Boldrick, Metropolitan Brick Co., who will also serve as chairman.

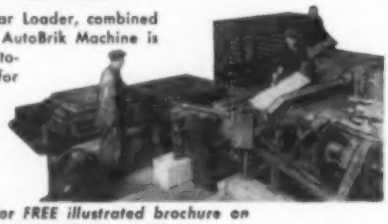
The depletion committee will serve as a watchdog to make sure the law, as passed, is interpreted correctly and no injustices are done to the clay products industry. Boldrick stated that because of the current administation's view at the present time towards depletion allowances, it might be as late as 1963 before any further legislative action concerning our industry is possible.

POSEY WORKS FOR BETTER

COLONIAL BRICK

Bigger profits with the automatic PALLET CAR LOADER

Automatic Pallet Car Loader, combined with the Lancaster AutoBrik Machine is the *best* way to automate production for sand molded colonial brick.



Write for FREE illustrated brochure on automatic brick machinery.

POSEY IRON WORKS, INC.

Custom Fabrication For Over 50 Years

DIVISIONS:

• Iroquois Asphalt Plants • Mixers and Blenders
• Tunnel Forms • Industrial Heating • Foundry
• Large OD Steel pipe

200 SOUTH STREET LANCASTER, PA.

Circle Service No. 42

leakproof

CLAY PIPE JOINTS *with* RCI EPOXY *and* POLYESTER

RCI epoxy and polyester resins especially formulated for clay pipe joints offer the pipe manufacturer materials of superior adhesion, toughness, resilience, compression set resistance, and resistance to acids and alkalis.

In addition, the controlled curing characteristics of these resins in combination with RCI hardeners and catalysts assure ease of handling and maximum processing economy.

Why not let RCI's long experience with plastic resins assist you in obtaining optimum production efficiency in casting these improved clay pipe joints?

REICHHOLD CHEMICALS, INC.
RCI BUILDING
White Plains, New York

Circle Service No. 43

ADVERTISERS INDEX

A
*American Clay Machinery 72

B
*Babcock & Wilcox Co. 22
*Bell Research, Inc. 60
Besser Co. 34
Bickerstaff, Inc. 10
*Bonnot Co., The 62
Bradney Machine Co. 37
Brick & Clay Record 30, 65, 69

C
*Chambers Bros. Co. 25
*Chase Foundry & Mfg. Co. 58
*Chisholm, Boyd & White Co. 39
Classified Ads 68-69

D
*Deister Concentrator Co., Inc. 69
Des Moines Glove & Mfg. Co. 69
Dodge Mfg. Corp. 14
*Drakenfeld, & Co., Inc., B. F. 24

E
E & R Mfg. Co. 57
Ehrsam & Sons Mfg. Co., J. B. 47

F
*Fate-Root-Heath Co. 71
*Ferro Corp. 19

G
Green Fire Brick Co., A. P. 2

H
Hannon & Sons, F. R. 60
*Hendryx & Assoc., Dwight B. 6
*Hoffman Bros. Drilling Co. 61
*Hommel Co., The O. 3
Hough Co., The Frank G. 9
Hyster Co. 28

K
*Kennedy Van Saun Mfg. & Engr. Corp. 20
*Kimberly-Clark Corp. 15

L
Lewis-Werke 13
Link Belt Co. 61

M
*Miller Equipment Co. 11
*Minneapolis-Honeywell Regulator Co. 8

N
National Paint & Manganese Co. 4
*North State Pyrophylite Co. 27

P
Paris Mfg. Co. 67
Pearne & Lacy Machine Co. 17
*Pennsylvania Crusher Div., (Bath Iron Works Corp.) 26
Posey Iron Works 66

R
Reichhold Chemicals, Inc. 66
*Robeson Process Co. 37

S
Scandura, Inc. 58
Screen Equipment Co. 59
*Steele & Sons, J. C. 70
*Swindell-Dressler Corp. 16

T
*Titanium Alloy Mfg., (Div. of National Lead Co.) 12
*Tyler Co., W. S. 56

U
*U. S. Stoneware 7
*Universal Vibrating Screen Co. 67

W
Wellsville Fire Brick Co. 23

This index is a feature maintained for the convenience of the advertisers'. It is not a part of the advertiser's contract and Brick & Clay Record assumes no responsibility for its correctness.

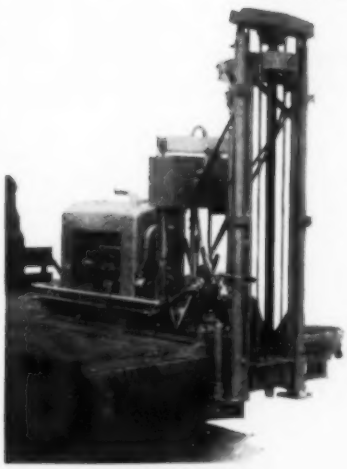
*See our Catalog in the 1961-1962 Ceramic Data Book

Parmanco

SPECIALISTS IN AUGER TYPE DRILLS

NOW . . . GREATER DRILLING POWER

A DRILL THAT DOES THE JOB FASTER AT LESS EXPENSE TO YOU!



- Full 6′ twin hydraulic cylinder feed for faster drilling and more pulling power.
- Simplified control. All controls are centralized at rear of drill.
- Time saving clutch. Three speed independent transmission and 10″ spring loaded truck clutch.
- Auger drills to 100 feet.

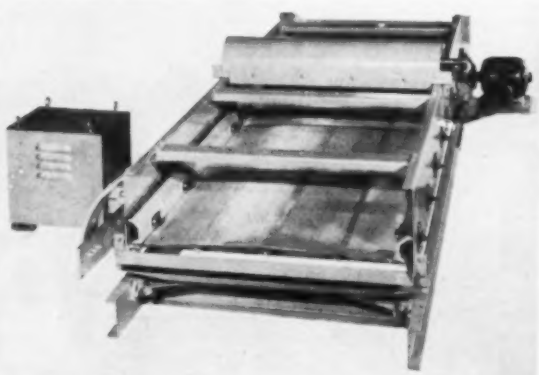
Complete information on request.

MODEL F-86B
Mounts on any ½ ton or larger truck

MODEL F-86
Jeep mounted

PARIS MANUFACTURING COMPANY
PARIS, ILLINOIS

Circle Service No. 44



UNILEC ELECTRICALLY HEATED SCREENS . . . Engineered to Provide High Capacity Performance on Difficult Materials, at a Reasonable Cost . . .

Write for Free Literature on Screens and Screening

UNIVERSAL VIBRATING SCREEN CO.
P. O. Box 942 • RACINE, WISCONSIN
Quality Screens Since 1919

Circle Service No. 45

Classified ADS

Limited to Want Ads, Consulting Engineers, or Used Equipment ads, (wanted or For Sale)

TRANSIENT WORD ADS: 15c per word for each insertion.

Headings such as "Wanted", "For Sale", etc. and address to be counted as part of the ad. Minimum charge $3.00 each insertion.

POSITION WANTED ADS: $3.00 for 25 words or less; each add'l word 15c.

FOR USE OF BLIND ADDRESS: (Care of BRICK & CLAY RECORD) count as 15 words to cover cost of handling and forwarding replies.

DISPLAY-BOX TYPE ADS

$18.00 per inch. On advance orders for twelve consecutive issues, $15.00 per inch per insertion. (No retroactive adjustment).

An inch is measured vertically on one column, 2¼" wide; three columns on a page. For a two-column advertisement add together height in each column.

Display classified advertisements are set and rates apply in half-inch multiples. (1 inch minimum; 5 inch maximum).

Add 25% to above rates for Reverse Plate (white lettering on black background).

All rates based on payment in advance except on regular contract.

No Agency Commission or Cash Discount

BRICK and CLAY RECORD
A CAHNERS PUBLICATION
5 S. Wabash Ave., Chicago 3, Ill.

WANTED—HELP

CAREER OPPORTUNITIES—Research and development, quality control, production methods and management opportunities are available with Southwest's leading clay products manufacturer. Ceramic Engineering Degree required with salarey commensurate with experience. Send resume, stating salary requirements to: Acme Brick Company, Box 425, Fort Worth, Texas. Attention: M. L. Vaughan.

CERAMIC ENGINEER, recent graduate or one with some experience in refractories. Good opportunity with established refractories producer, located in Ohio. Please submit reply, stating educational background, previous experience, and salary desired. Write Box 12-BAU, Care of Brick & Clay Record.

WANTED

WANTED: Broken Silicon Carbide Kiln Furniture or Bats. Will pay top price. Urgent. Union Mining Co., 2306 1st. Nat'l. Bank Bldg., Pittsburgh 22, Pa.

WANTED—One used No. 18C Left Hand cutter reel for J. C. Steel No. 18 cutter. Please give wire spacings and condition. Wanted—One used Repress. Please give make and Model No., condition and price. Write Box 12-BAY, Care of Brick and Clay Record.

FOR SALE—USED EQUIPMENT

ONE Steel Model 20-E combined auger de-airing machine and one Model 20-E.
FIVE assorted brick dies, 4 hollow tile-patio die and roman brick die.
ONE, Steel No. 40-E combined de-airing machine
ONE, Real Hand cutter.
ONE, Steel No. 18 Automatic Cutter
ONE, International De-airing Combined Falcon, with extra liners knives, pinion shaft resurfaced augers—good condition.
ONE, American Automatic No. 858 Automatic Electric Cutter good condition.
TWO Fernholtz 48" cage type ulverizers, one SKF bearing the other water cooled babitted bearing, all good condition.
ONE, No. 1 and No. two Faird Pot Machines with seven pot dies, all good condition.
ONE, Model W.6422 4½ x 4 twin cylinder water cooled Quincy Vacuum Pump excellent condition.
ONE, 4' x 40 ft/horizontal refractory lined dryer with stack combustion chamber 5½ hp. motor gear reduction drive Johnson oil burners, good condition.

FERNHOLTZ MACHINERY CO.
8468 B Melrose Place, Los Angeles 46, Calif

FOR SALE—USED EQUIPMENT

JUST PURCHASED

1—Marcy #64-1/2 ball mill, 100 HP.
2—8'-6" x 70' rot. dryers, ⅝" welded.
1—6' x 150' rot. kiln, ⅝" welded.
1—Bonnot 5' x 10' contin. ball mill, 75 HP.
1—Symons 2' shorthead cone crusher.
1—Allis-Chalmers 6' x 12' rod mill, 125 HP.

IN STOCK

1—Vulcan 10' x 11' x 175' rotary kiln.
3—10' x 100' rot. dryers, ⅝" shell.
2—National 10' x 78' rotary dryers, ¾".
2—8'-6" x 70' dryers, ⅝" welded.
1—Traylor 8' x 80' rot. kiln, ⅝" welded.
1—Allis-Chalmers 7' x 120' rot. kiln, ⅝" welded.
2—Bonnot 7' x 110' rot. kilns, ⅝" shell.
1—6' x 7' x 100' rot. kiln, ⅝" shell.
1—Standard 3' x 23' rot. dryer, ¼".
1—Raymond 66", 6-roller hi-side mill.
1—Raymond 50", 5-roller hi-side mill.
1—Hardinge 8' x 48" conical pebble mill.
2—Hardinge 7' x 36" conical pebble mills.
3—Allis-Chalmers 5' x 22' ball-tube mills.
6—Jaw crushers; 36" x 15", 24" x 13", 20" x 6", 18" x 9", etc.

PERRY EQUIPMENT CORP.
1432 N. 6th St. Phila. 22, Pa.
POplar 3-3505

DESIRABLE EQUIPMENT AT REALISTIC PRICES

Crushers and Hammer Mills
Muller type Mixers-Mills
Rotary Dryers and Kilns
Sifters, Screens, Separators
Filter Presses and Filters
Ball & Pebble Mills
Raymond Imp Mills, All Sizes
Presses and Pellet Machines

Send for "First Facts"

FIRST MACHINERY CORP.
209-10th St. Bklyn. 15, N.Y.
ST. 8-4672; Cable "Effemcy"

DEAIRING BRICK MACHINES—3 sizes
PUG MILLS—8', 10'—Single & Double Shaft
GRANULATORS—Chambers #51 Freese P-16
CUTTERS—Chambers, Steele #18 & Hand
DRY PANS—7' & 9'
HAMMER MILLS—Many Sizes
SMOOTH ROLLS—12", 18" & 24"
CONICAL ROLLS—Chambers & Brewer
DISINTEGRATORS—12", 18", 24"
JAW CRUSHERS—Many sizes

20" x 20" Magnetic Pulley Allis 6" LAB Cone Crusher 25" x 20' Rotary Kiln —

FEEDERS—5' Disc, Apron, Reciprocating
ROTARY DRYERS—24" to 8' Diam.
DRY MIXERS, Lancaster 8KG, 23, 24, Simpson #3 Clearfield #610
SIGMA BLADE & RIBBON MIXERS—Several
SCREENS—Many Single & Double Deck
HARDINGE CONICAL MILLS—4½', 6', 8'
BALL & PEBBLE MILLS—Many Sizes
LAB SIZE—Crushers, Mixers, Screens
SLIP LAWNS—Crossley Double Deck
LIST YOUR SPARE EQUIPMENT WITH US

ROBERT L. CLARE
212 Rector St. Perth Amboy, N. J.
Phone Hillcrest 2-0061

FOR SALE—USED EQUIPMENT

BOILERS—500 HP—150 PSI—Package gas/oil—New late 1957.

FORK LIFT—15000 Hyster—12' lift completely remanufactured.

DE-AIRING COMBINATION MACHINES FRH (PA 4)—Steele #50 Special—Bonnot 18" Auger—All rebuilt.

HAMMERMILL—non clog—Pettibone Mulleken 100 TPH plus.

SCREENS—42" x 10' Cedar Rapids—5' x 12', & 6' x 20' Hewitt Robbins.

PUG MILLS—8' Amer. Single, 10' Brewer Roller Bearing, 10' American double shaft.

LAWLER COMPANY
Metuchen, N. J. Liberty 9-0245

FOR SALE

480 acres of proven shale deposit located on the Illinois River and Rock Island R.R. near Chicago. Exploration and tests conducted by a nationally known research organization.

Contact A. J. Richter,
TUTHILL PUMP CO.,
939 East 95th St.,
Chicago 19, Ill.

FOR SALE

1—Stevenson 9' dry pan, extra parts, a bargain.
1—LOCOMOTIVE, Brookville 4 ton, 36" gauge, Gas.
1—HAMMERMILL—Miller with 2-40HP Motors.
1—DRY PRESS—B-B Special.
1—CRUSHER, Single Roll Stevenson 18" x 36".
1—SCREEN, Hummer Type 38, 4' x 10', Heated, excellent shape.

Tel. FR 24310 118 Park Rd., Wyomissing, Pa.
HERMAN A. HALL

WALTER G. STOLL & SONS
New and Used
CLAY WORKING MACHINERY
5028 Alhambra Ave., Los Angeles 32, Calif.
CApitol 2-1141

For Sale—Lower Kittanning buff burning plastic Fireclay. Mine run, crushed, or ground. Consolidated Clay Mines, 265 W. Lincoln Way, Lisbon, Ohio.

F. J. FORD
Representative—Engineer
Clay Working Machinery
Car Tunnel Kilns—Dryers

P.O. Box 537 Dallas, Texas
P.O. Box 690 Whittier, California

FOR SALE—100 double deck dryer cars, three transfer cars, $25 each, also rails and burners. Norman Brick Co., P.O. Box 126, Phone 2333, Ringgold, La.

FOR SALE—USED EQUIPMENT

250 Chase Double Deck Cars
250 Single Deck Cars
Rails and Accessories

M. K. FRANK
Grand Central Palace, New York 17, N. Y.
401 Park Bldg., Pittsburgh 22, Pa.

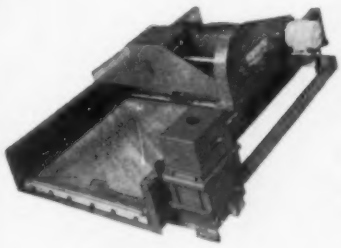
FOR SALE: Two—AB Special Dry Presses, FRH Jr & Model 6. Chambers Royal, Intl. Falcon deairing; Freese GH, Steele #1, #2, Ray, Amer 404 non-deairing .5' to 10' Dry, 8' Wet Pans. Lehmann 7' Mixmuller. Dixie 5060, Williams #30, Penna CF3-38 Hammermills. Pugmills, single & double roll Crushers, Vibrating Screens. Komarek Greaves Briquetting, Stevenson Sewer Pipe Presses. Chambers Keystone #2 Repress. Steele #18 Cutter. 4x40, 8x125 Rotary Kilns. 5x17, 5x21 Rotary Dryers & 5½x60 Cooler. 75 Chase single deck 24" ga, some 25", 28" ga. Dryer Cars. MID-CONTINENT EQUIPMENT CO., 8321 Gannon St., St. Louis 32, Mo. Wydown 1-2826.

T. W. GARVE
Registered Professional Engineer
Designs, Reports, Clay Testing
Phone: AM 2-6998
69 West Weisheimer Rd.
Columbus 14, Ohio

FOR SALE—Foundry Clay, also buff burning clay. B. F. Booz and Company, Macomb, Illinois.

FOR SALE—Cone 34 Calcined Flint in lump or ground form and cone 36 High Alumina Nodular Clay. Union Minerals, Inc., 2306 First Natl. Bank Bldg., Pittsburgh 22, Pa.

Leahy® Screen Efficiency Means MORE PROFITS



Whether your screening operation has been marginal or yielded acceptable profits, the heat integrated Leahy Screen can improve your cost records as it has done for others.

This statement is made confidently because of many exclusive engineering refinements working for you every operating minute.

Here is a screen into which Flex-Elex® heating has been carefully engineered. It is not an auxiliary attachment. Note the clean design . . . ***with no flexible transformer connectors*** . . . for top heating efficiency.

This and many other features combine to put the Leahy Screen far out in front of others on the market. Send for Bulletin 16-EH.

THE Leahy NO-BLIND VIBRATING SCREEN
— offers —
INTEGRATED HEAT SCREENING

THE DEISTER CONCENTRATOR CO., INC.
The Original Deister Co., Est., 1906
913 GLASGOW AVENUE FORT WAYNE, INDIANA

Circle Service No. 46

Answers thousands of questions on properties and uses of engineering materials!

Now Available . . .

ENGINEERING MATERIALS HANDBOOK

1952 *pages*
6 × 9
678 *illus.*
$21.50

Editor-in-chief: CHARLES L. MANTELL

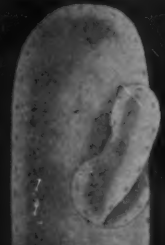
HERE ARE ALMOST 2000 PAGES OF ANSWERS to both routine and unusual problems that crop up whenever engineering materials are being selected. Technical tables—design information—structural characteristics—tabular data—a wealth of useful and specific facts—are all made quickly available. Comprehensive and authoritative, this handbook considers materials from the viewpoint of engineering structures, machinery, and equipment. It gathers together in one volume the information needed by **everyone** concerned with design, structure, and serviceability. An 83-page index pinpoints the facts you want in an instant! **Prepared by over 150 specialists; Editor-in-Chief: Charles L. Mantell, Chairman, Dept. of Chemical Engineering, Newark College of Engineering.**

Instant, authoritative reference —

- Covers all common and not - so - common materials
- Gives complete data on important design properties
- Emphasizes fabricated or commercially available forms
- Allows quick comparisons among alternate materials
- Gives specific use recommendations
- Permits accurate prediction of behavior.

BRICK & CLAY
5 South Wabash Ave., Chicago 3, Ill.
BOOK DEPT.

AVOID COSTLY INJURIES
LONG-WEARING TUFHORSE MITTENS AND PADS GIVE EXTRA PROTECTION



Tufhorse KANT-RIP

DES MOINES GLOVE & MFG. CO.
Des Moines, Iowa

Increase the output of your men. Protect their hands with Tufhorse hand pads, gloves or mittens. Made of heavy, durable cowhide, Tufhorse Kant Rips are flexible, tough, help men work faster.

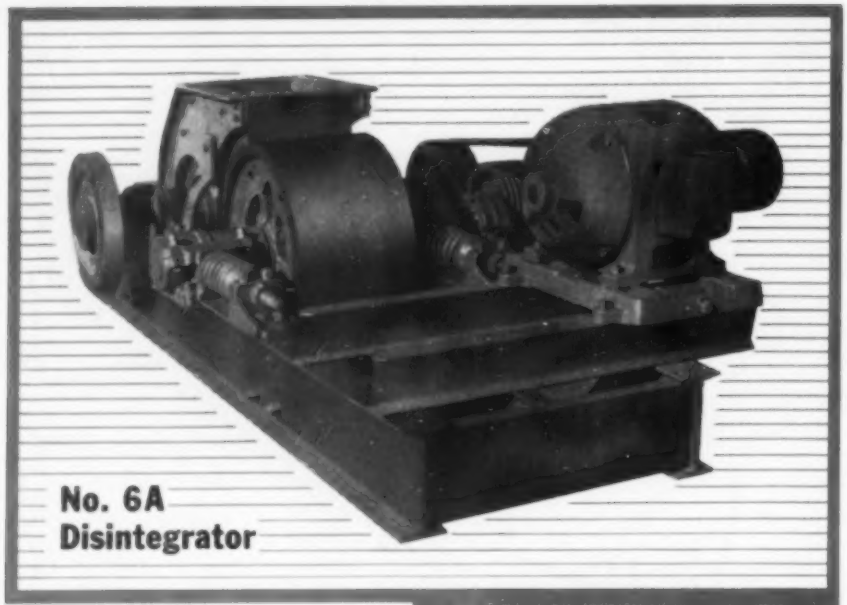
MAIL FOR FREE SAMPLE

Des Moines Glove & Mfg. Co.
Des Moines, Iowa

Please send free sample of your (.....) hand pad, (.....) glove, (.....) mitten for testing. (Specify which one you want).

Name .....
Position in Co. .....
Address .....
City .....
State .....

Circle Service No. 47

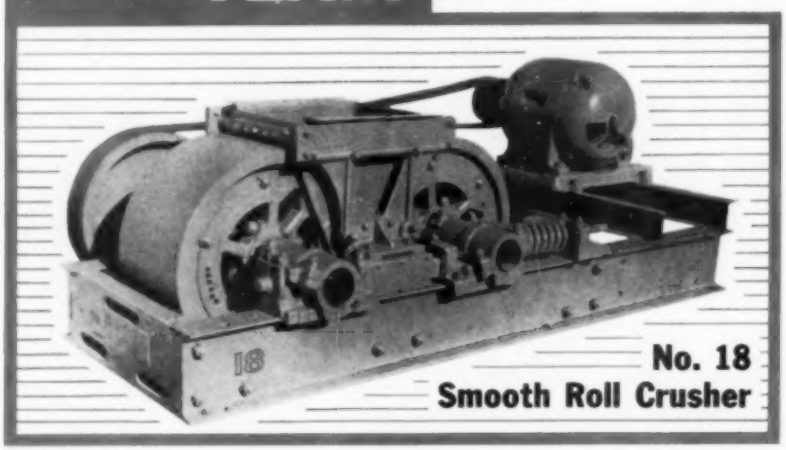


No. 6A Disintegrator

A REDUCING TEAM

Some materials can be satisfactorily crushed or ground on one of these machines — and some on the other. Some require the use of both.

For moist, sticky clays these two machines do the complete crushing job. The Disintegrator does primary grinding, and the Smooth Roll Crusher does final reduction. Many shale plants use the Disintegrator to assist pans or hammermills. Some use the crusher for screen tailings.



No. 18 Smooth Roll Crusher

Both crushers and grinders are available in three sizes. Write for full information today. Free engineering service is available to help you select the right equipment for your use.

SUSTAINING ASSOCIATE SCPI

J. C. Steele & SONS, Inc., Statesville, N. C.

Pacific Agents: Walter C. Stoll, 5028 Alhambra Ave., Los Angeles 32, Calif.

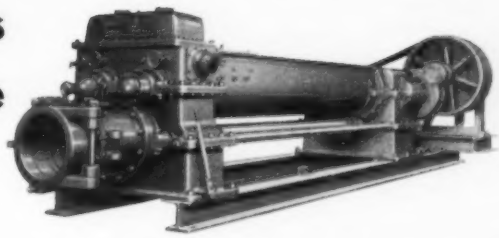
THE BEST IN CLAY MACHINERY SINCE 1889

Circle Service No. 48

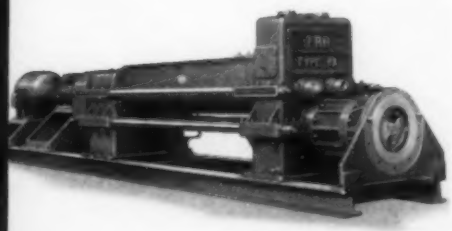
Ceramic
F-R-H
Machines

Finest in the world
Since 1888

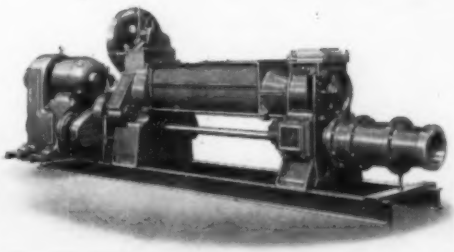
Whatever your needs
Check the F-R-H Line



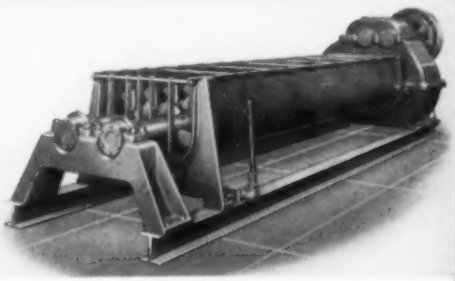
DE-AIRING BRICK AND TILE MACHINES
Six sizes using from 30 to 300 hp. with optional four-speed transmission drive. There is a size to fit any production requirement.



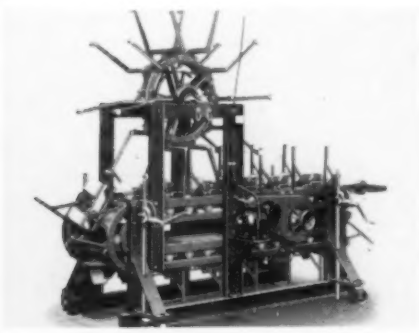
SEWER PIPE MACHINES-HORIZONTAL: Engineered especially for the stop-start requirements of sewer pipe extrusion plus the extra flexibility of four-speed transmission drive.



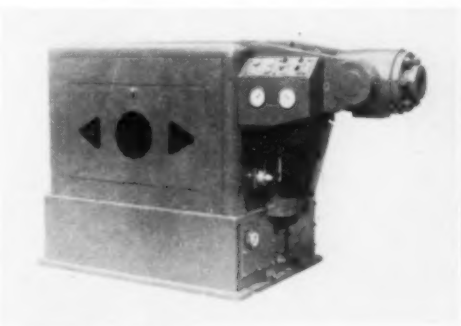
DE-AIRING POTTERY MACHINES: Both horizontal and vertical, with choice of 12 sizes, 25 models to meet your exact requirements.



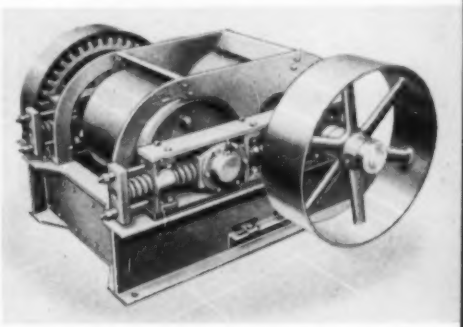
DOUBLE SHAFT PUG MILLS: For tempering of materials, with double pugging, the F-R-H Pug Mill offers superior features in both engineering and construction.



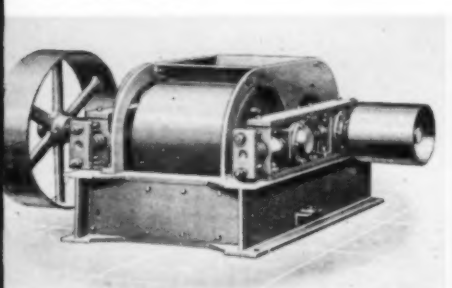
AUTOMATIC CUTTERS: Automatic brick and tile cutters in all sizes, continuous cutting without waste. Hand cutters available to meet special requirements.



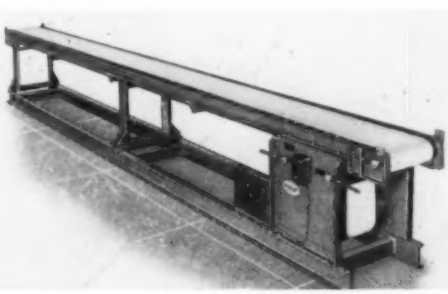
HYDRAULIC PRESSES: Hydraulic presses available in both horizontal and vertical models. Die pressure for extremely stiff extrusion up to 8,500 P.S.I.



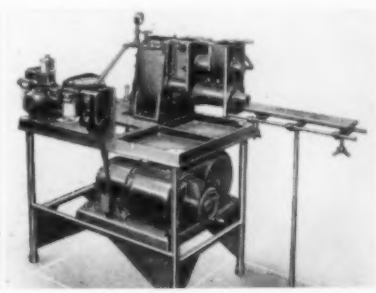
CRUSHER-SMOOTH ROLL: Heavy-duty, high capacity crusher with renewable, shell-type rolls. Capacity 20 to 40 tons per hour using 25 to 40 hp. motor.



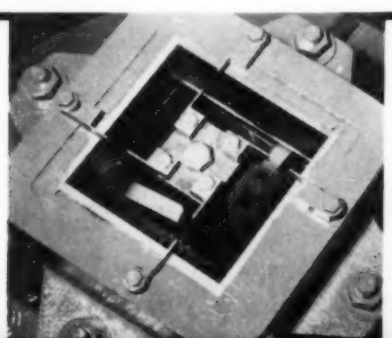
DISINTEGRATOR: Heavy-duty, high capacity disintegrator of welded steel construction, renewable rolls. Tool steel cutting knives on high speed roll.



DELIVERY BELTS: Engineered to your exact requirements in 10" to 14" widths, lengths to suit. Off bearing or feed belts designed to solve your handling problems.



LABORATORY MACHINES: Experimental and quality control machines in suitable sizes and models. Used by all leading Ceramic Colleges.



DIE ENGINEERING:
Complete die engineering and production facilities for any die requirements. Licensed Ni-Hard producers in our own foundry.

The Fate-Root-Heath Company

CERAMIC MACHINERY DIVISION

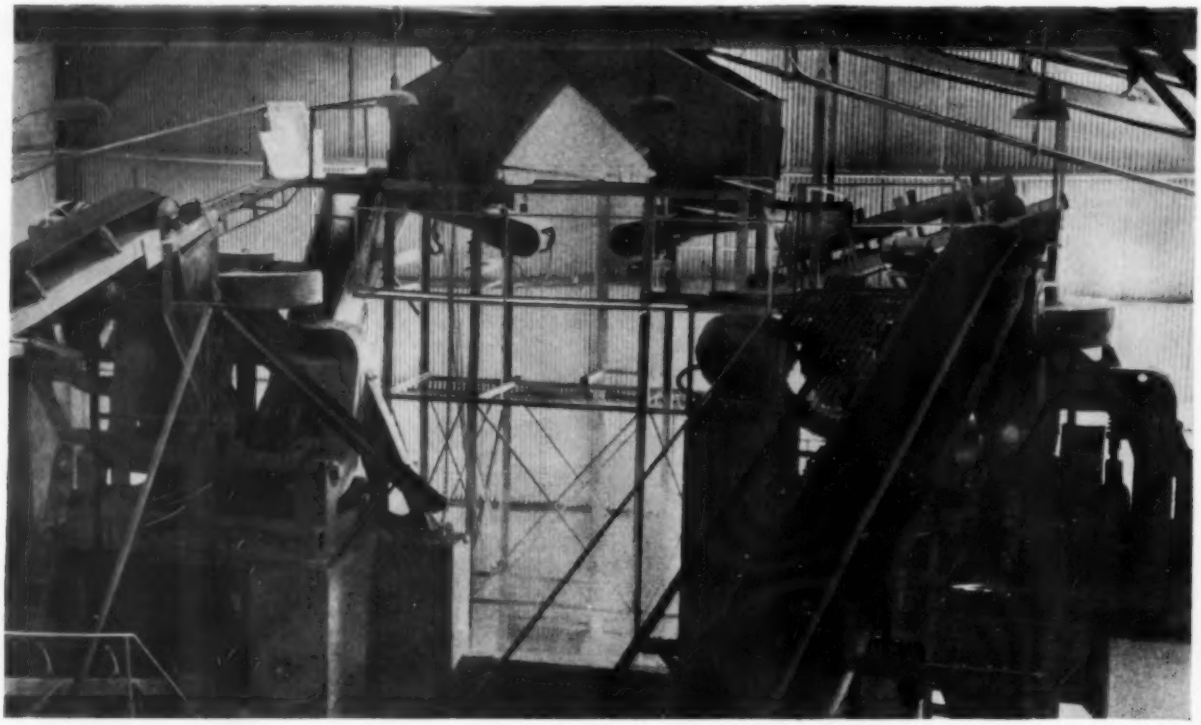
Dept. B-1 **Plymouth, Ohio, U.S.A.**

Service - anytime, anywhere, on any F-R-H Ceramic Machine ever built.

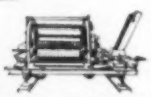
Circle Service No. 49

GRINDING 144,000 TONS A YEAR ON $3,000 MAINTENANCE—Columbia Brick and Tile Company, Columbia, South Carolina, (a subsidiary of Richard Shale Products Company) use 2 American 384 grinders in the production of 72 million bricks a year. George Bishop, manager, comments, "The American 384 was chosen because of its proven record of low maintenance and high production. Even with wet material, production is higher than with other makes. On our first 384, we used the original set of tires four years before it was necessary to replace them, and then we used genuine American parts."

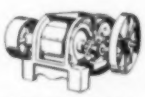
For Increased Profits... Look to American



American
CLAY MACHINERY


ELECTRIC CUTTERS

SMOOTH ROLL CRUSHERS


DISINTEGRATORS

PUG MILLS

GRINDERS

COMBINATION DE-AIRING MACHINES

DIVISION OF
HUBER-WARCO COMPANY - Marion, Ohio, U.S.A.

Circle Service No. 50